International Energy Biweekly Review

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INTERNATIONAL ENERGY BIWEEKLY REVIEW

Overview

An effort is already under way in OPEC for a price increase early in 1978. Spearheading the move is Venezuelan President Perez, who is concerned about his party's chances in next fall's national elections and wants to compensate for failing to fully capitalize on hosting the Caracas meeting. He is calling for a special meeting to raise prices before the cartel's next scheduled ministerial session in June 1978. Besides seeking an immediate increase, Perez is advocating adoption of a formula that will automatically raise crude oil prices in the future.

Extraordinary ministerial meetings are not unusual in OPEC. Several have been held since 1973; the last was in April 1976 in Geneva to discuss oil prices. Support for one now is most likely to come from those countries that argued for a price rise at Caracas: Iraq, Libya, Algeria, and Nigeria. Saudi Arabia and Iran are satisfied with the results at Caracas, where they successfully engineered a price freeze with minimal friction among cartel members.

Riyadh and Tehran are on public record as advocating a freeze for all of 1978, although the Shah is probably less committed to this position than the Saudis. They will look to the market as an indicator of the intensity of pressure they can expect within OPEC for a price rise. Indeed, Saudi oil minister Yamani expects market forces to start exerting strong upward pressure on prices during the last half of 1978.

Yamani's assessment of the market is more perceptive than is commonly realized. To characterize the current market as "soft" is misleading; OPEC is in a considerably stronger position than two years ago, for example. In 1975, demand for OPEC crude was about 27 million b/d, several million b/d below OPEC productive capacity. Now demand for OPEC oil is 31 million b/d. Moreover, we have recently lowered our estimates of OPEC productive capacity to 33 million b/d. The new figure reflects both production ceilings and technical constraints in several OPEC countries. We will be addressing these problems in future issues of this publication and will publish a revised OPEC oil production capacity table in the 11 January 1978 issue. (Secret Noforn-Nocontract-Orcon)

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Note: Comments and queries regarding this publication are welcome. They may be directed to [redacted] of the Office of Economic Research, telephone 351-5804.

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Press stories last weekend gave a fairly accurate generalized description of technical (reservoir pressure, water, and maintenance) problems that are likely to inhibit any major expansion in Saudi oil output. Increasingly concerned about optimizing ultimate recovery at its oil fields, Saudi petroleum officials are beginning to identify these difficulties more openly. Future issues of *International Energy Biweekly Review* will provide detailed analyses of the technical constraints that might limit Saudi production in the near and medium terms.

After careful examination of evidence, we still discount the assertion which appeared in the press that Saudi Arabia deliberately overstated the volume of its oil production and exports during first half 1977. The assertion is largely predicated on incomplete Saudi oil export data which have consistently understated the volume of Saudi oil exports—not only during the OPEC two-tier price split in first half 1977, but also in 1976 and second half 1977 when Riyadh had no apparent motive for distorting production information.

We also dispute the definitive assertion that weather was not severe enough to hamper Saudi oil loading operations in the early months of 1977. We undertook a thorough examination of handling operations at Ras Tanura earlier this year. Discussions with the contractors who designed and built the offshore loading facilities revealed that the port is subject to extremely restricted operating conditions for tankers, particularly at Sea Island where VLCCs are loaded, when shifting winds are encountered. The precise wind and wave conditions at Ras Tanura during that period have not been ascertained because the nearest weather station with available data is located more than 30 kilometers away, inland at Dhahran. (Secret Noforn)

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USSR: WEST SIBERIAN OIL RESERVES

A recent report by the US Geological Survey that the West Siberian basin may have as much as 48 billion barrels of undiscovered oil in addition to total discoveries of 32 billion barrels does not change CIA estimates of Soviet oil production up to the mid-1980s. Because of time lags in discovering and developing new deposits before production gets under way, any estimate of undiscovered oil is not very relevant to the question of how much oil the Soviets will be able to produce over the next seven or eight years. More relevant are additions to proved reserves. On this, the Soviets are apparently running behind plan.

US Estimates

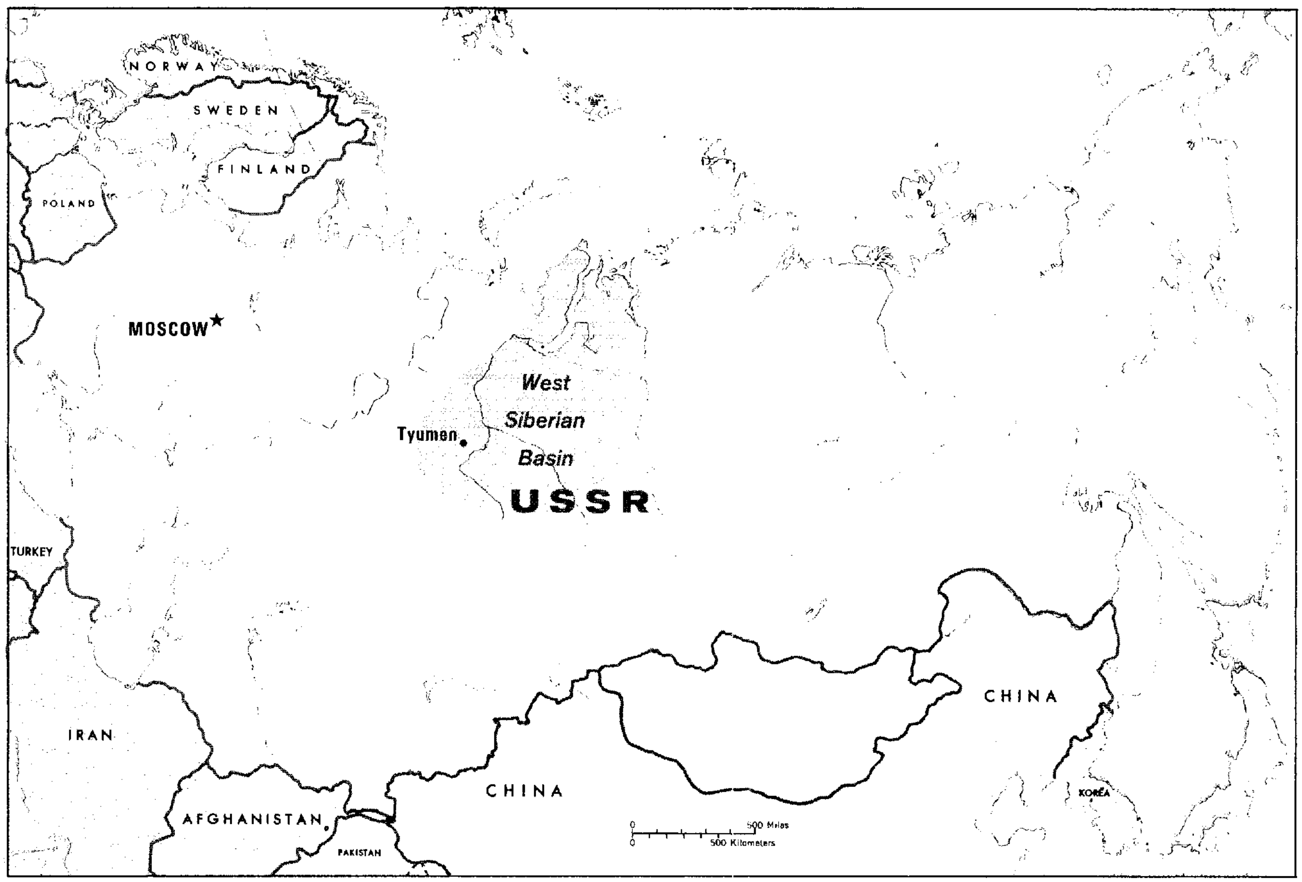
CIA estimated last April that some 27 billion barrels of oil had been discovered in West Siberia—only 5 billion barrels below the Geological Survey estimate of discoveries. Production to date from these fields has run about 7 billion barrels. CIA has not independently estimated ultimate potential oil resources of the West Siberian basin or any other Soviet petroleum region.

Based on analogies with US sedimentary basins and the use of volumetric estimating techniques, the Geological Survey estimated that the oil and gas potential in West Siberia ranged from a low of 20 billion barrels to a high of 80 billion barrels of oil; it reported the high estimate as the most realistic.

Other researchers are much less optimistic about potential oil and gas resources in West Siberia. In October, an international oil company estimated total oil potential of the West Siberian basin at 19 billion barrels.

The Soviet View

Soviet geologists undoubtedly have made estimates of undiscovered oil. The director of the West Siberian Research Institute for Petroleum Exploration recently stated in *Pravda* that Soviet geologists have discovered only part of the predicted reserves of oil and gas in West Siberia. He also said that in West Siberia nearly all "structural traps"—the type of geological formation in which most of the world's oil is found—have already been prospected and that now "nonstructural traps" must be sought. To date, these formations have been only a minor factor in the total world output of oil.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The Soviet official also stated that geologists in Tyumen—the principal producing area in West Siberia— have failed to meet the planned increase in oil reserves in 1976 and were also behind plan this year. The Soviets have not reported a major oilfield discovery in the past few years. (Secret Noforn)

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USSR-ITALY: RENEGOTIATED GAS PRICES

Italy has acquiesced in Soviet demands for a sizable increase in payments for Soviet gas. In return, Moscow has promised—but is not committed—to purchase $340 million in goods and services before 1980 from ENI, Italy's state-owned energy company. Moscow also apparently extended its commitment to deliver gas to Italy for an additional six years and promised Italy a share of any new agreements to supply gas to Western Europe. The new price accord was worked out in November, and Italian officials went to Moscow last week for the final signing.

Natural gas is Italy's second most important source of energy. In 1976 consumption was 953 billion cubic feet (465,000 b/d of oil equivalent).

Italy: Energy Consumption by Source, 1976

	Percent
Total	100
Oil	68
Gas	16
Coal	8
Hydro/geothermal	7
Nuclear	1

ENI paid about $0.54 per thousand cubic feet for Soviet gas in 1976, according to Soviet trade statistics. The new agreement apparently will boost the price to about $1.27 per thousand cubic feet retroactive to mid-1977. This still compares favorably with the current West European price of about $1.70 per thousand cubic feet

The new agreement also establishes formulas tying future gas prices to fuel oil prices, assuring that Soviet gas earnings will rise with Western energy prices and that the gap between Soviet and Western gas prices will gradually narrow.

The gas price dispute began in February, when Soviet Premier Kosygin told Italian officials that the Soviets wanted a higher price for their gas. To put pressure on the Italians, the Soviets in May threatened to cut off gas shipments; it seems unlikely, however, that they would have carried out this threat. For its part, ENI first considered submitting the case to international arbitration but feared a similar squeeze from other suppliers if the dispute were made public.

After a meeting in June with the Soviets, ENI finally decided to agree to higher prices if the Soviets agreed to increase the quantity of gas delivered. Soviet gas deliveries to Italy began in 1974 and will amount to about 175 billion cubic feet this year (86,000 b/d of oil equivalent or an estimated 18 percent of total Italian gas consumption). The volume is scheduled to increase to 247 billion cubic feet by 1980 (120,000 b/d of oil equivalent) and continue at that level until the year 2000—apparently a six-year extension of Moscow's original commitment.

The higher gas prices and scheduled increases in amounts delivered should increase the value of Soviet gas exports to Italy from $69 million in 1976 to about $300 million in 1978. ENI doubts that the Soviets will fulfill their pledge to buy $340 million in goods and services in the next two years, but it can point to the pledge as evidence that the Italians did not cave in to Soviet pressure.

ENI believes, moreover, that this part of the agreement may strengthen its position in future arbitration if the Soviets should violate the pricing or delivery terms of the new agreement. (Secret Noforn-Nocontract)

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USSR: SET TO SIGN GAS LIFT CONTRACTS

The Soviets are nearing a final decision on purchasing $400 million in gas lift equipment for two West Siberian fields—the giant Samotlor and the smaller Fedorovo fields. Contracts may be signed as early as February 1978, culminating more than two years of negotiations. Currently in the running for the lucrative deal are four consortia led by West German, French, and two Japanese firms. At least three US firms are in the running as consortia participants to supply down-hole and surface equipment.

Gas lift is a secondary recovery technique in which gas under pressure is injected into oil wells in order to bring the oil to the surface when the natural drive mechanism of the field is insufficient to do so. It also is employed to stabilize oil production at older fields with rapidly increasing water output. The oil is lifted as a foamy mixture and separated from the gas in an oil-gas separator. The current gas lift proposal projects a maximum production rate of 1.1 million b/d of oil from roughly 1,400 mechanized gas-lift wells at Samotlor in 1981.

At present, Samotlor is being worked using the "water-flooding" technique. Water is injected beneath and at the edges of the oil-saturated rock stratum to drive the oil upward and sideways into the producing wells. Production at Samotlor is now at 2.6 million b/d from roughly 2,400 producing and injection wells. By 1991 when all producing wells will have been converted to gas lift, output from 3,200 wells will decline to 320,000 b/d due to increasing water incursion in the field. At that time, the water cut will rise above 90 percent; that is, 10 tons of fluid will have to be lifted for each ton of oil recovered. (Secret Noforn-Nocontract)

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CANADA: LARGE ALBERTA OIL FIND

Canada's first major conventional oilfield discovery in 12 years is attracting heavy interest in an area 135 kilometers southwest of Edmonton, Alberta. Land sales in the area are bringing record prices as drillers scramble to get in on the find. While the discovery is expected to arrest declining domestic reserves, it will not reverse Canada's growing oil trade deficit.

The Discovery

In January 1977, a wildcat well being drilled by Chevron struck oil in a Devonian formation at about 3,000 meters in an area now designated West Pembina. After notifying the Alberta government, Chevron continued drilling and subsequently has brought in several additional producing wells. The discoveries indicate two new overlapping deep plays below the old Pembina Cardium field, which has produced oil for more than 20 years from wells drilled to 1,500 meters. Currently Alberta estimates proved reserves in the Cardium field at 870 million barrels, one-third of the 2.5 billion barrels of recoverable oil originally estimated in the field.

Rumors of the discovery leaked out in September 1977 and have since pushed land prices in the Pembina area up sharply in spite of Chevron's attempts to downplay the size of the find. For example, Home Oil Co. Ltd. recently purchased 3,600 hectares for the highest price ever paid for oil leases on a single parcel of land in Alberta. An adjacent parcel was purchased for a near record of $32,200 per hectare.

A Major Find

Even though several years will be required to fully evaluate the field, Alberta's Energy Minister has already called West Pembina a major find. Based on his statement and production tests from several wells in both Devonian and Mississippian strata, industry sources suggest a minimum of 500 million barrels of oil are potentially recoverable. Several believe the field may be a part of a larger play running along the Rocky Mountain foothills from Jasper Park in Alberta to the Montana border.

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To date the bulk of exploratory drilling is centered on two Devonian strata where Home Oil and Dome Petroleum Ltd. have also made discoveries. In addition to these firms and Chevron, another Canadian group headed by Champlain Oil is drilling in the area. A second drilling location in the Brazeau River Basin, south of Chevron's first discovery well, is also receiving substantial interest. Dome Petroleum and Amoco-Pacific are drilling at this site.

No Policy Change Expected

The new discovery ends a decade in which no major oilfields have been found in Alberta. The last major oil strikes occurred at Zama and Rainbow Lakes in northwest Alberta in 1964 and 1966, respectively. Since then only small isolated discoveries have been made and most industry efforts have been directed toward developing known oil reserves. More recently, oil firms have been drilling for natural gas because of rapidly rising wellhead prices and improved returns to producers. As a result of the interest in natural gas, Canada's proved reserves of oil and gas liquids have continued a decline that started in 1969 when reserves peaked at 10.5 billion barrels. By the end of this year, proved reserves will have fallen to an estimated 7.2 billion barrels.

The new Pembina play is not expected to affect Ottawa's policy of phasing out crude exports to the United States. To protect declining reserves, Ottawa has cut exports to the US market from a peak of 1.2 million barrels daily in 1973 to an estimated 274,000 barrels per day in 1977 and plans to phase out oil exports entirely by 1981. (Confidential Noforn)

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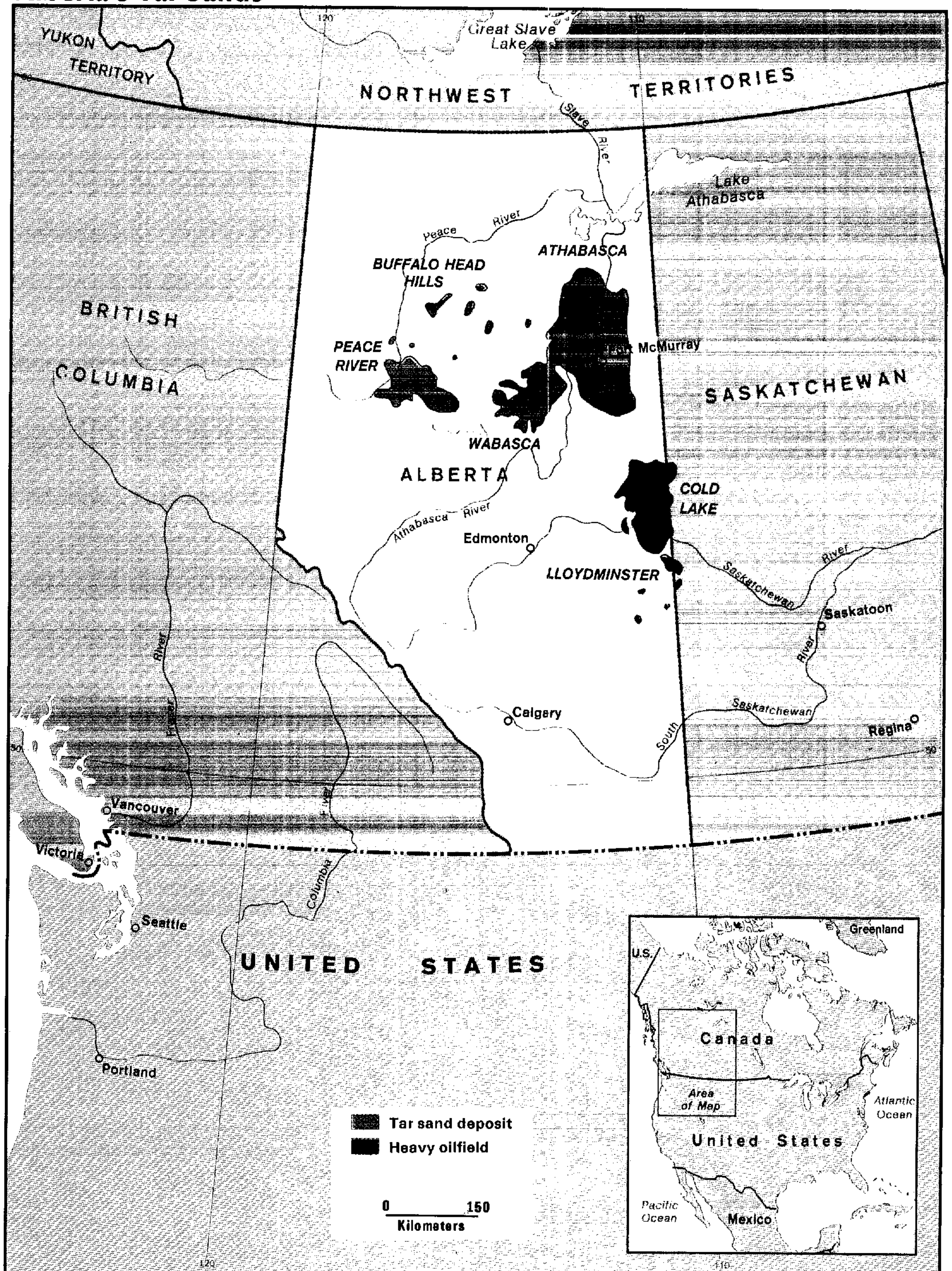
CANADA: MIXED PROSPECTS FOR NONCONVENTIONAL CRUDE PRODUCTION

Oil companies are showing renewed interest in exploiting Canada's huge oil sand and heavy oil resources. Oil prices and tax/royalty concessions from the government are now adequate to assure a reasonable return to Canada's one operating tar sands plant and to the Syncrude plant about to initiate production, thereby encouraging other companies to reconsider projects they had abandoned.

High capital costs, unresolved technical problems, and uncertain government policies continue to retard development, however. Much higher oil prices will be needed to justify the continually rising construction costs of the newer plants. If all projects now under construction and consideration are implemented, Canadian nonconventional oil production could total nearly 700,000 b/d by 1990.

Alberta's Tar Sands



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One of the World's Greatest Oil Reserves

The Athabasca and adjacent tar sands together with the heavy oil deposits of Lloydminster and Cold Lake contain one of the world's largest reserves of petroleum hydrocarbons. Canada's Department of Energy, Mines, and Resources has estimated that the tar sands contain from 70 billion to as much as 200 billion barrels of recoverable crude. The heavy oil deposits are estimated to contain 15 billion to 35 billion barrels. If the maximum recovery estimates are correct, Canada's known crude reserves would be increased about 30 times and the world's crude reserves would be augmented by about one-third.

The Lloydminster crudes are fluid enough to be exploited by conventional methods, but the Cold Lake crude is so viscous that thermal injection is required. The tar sand bitumen is extremely viscous with API gravities of 6 degrees to 10 degrees and with a high sulfur content. It is exploitable chiefly by thermal or chemical in situ methods except for about 10 percent of the sands that lie close enough to the surface to permit strip mining. Current production depends on surface mining followed by processing to separate the sands from bitumen. Commercial scale in situ recovery is probably at least a decade away. Following recovery, the bitumen must be processed further to produce a light synthetic crude oil.

The Problems

Development of Canada's nonconventional crude resources has had a checkered history and production currently averages only about 100,000 b/d with output about evenly divided between tar sands and heavy oil. Prospects for development were encouraging in the 1960s when Great Canadian Oil Sands Ltd. constructed the first tar sand plant. Because of technical and labor problems, however, the plant's output averaged only 75 percent of its then 45,000 b/d capacity. By the end of the 1960s, the Great Canadian plant's difficulties had cooled interest in further tar sand development.

Interest revived in the early 1970s and was reinforced by the 1973 oil crisis. The Syncrude consortium began construction of Canada's second tar sand plant in 1973 but the project was nearly aborted two years later due to large cost overruns. The plant's 125,000 b/d capacity was estimated in 1973 to cost $500 million but is now expected to come in at $2 billion to $2.5 billion when fully completed in 1983. Capital costs per daily barrel of capacity will approach $20,000 compared with $10,000 for conventional crude in Canada, less than $6,000 for North Sea Oil, and $250 for Middle East oil. Because of skyrocketing costs, one of the partners withdrew from the consortium leaving the other three to find new capital or abandon the project.

Present and Projected Nonconventional Crude Oil Plants

Plant	Type	Status	Capacity (Thousand b/d)	Initial Production	Cost (Billion US $)
Great Canadian Oil Sands, Ltd.	Tar sand	Completed	65	1967	0.3
Syncrude Canada, Ltd.	Tar sand	Under construction	125	1978	2.0 - 2.5
(expansion)	Tar sand	Possible	125	late 1980s	NA
Shell Canada, Ltd.	Tar sand	Proposed	125	late 1980s	3.4 - 4.0
Husky Oil Operations Ltd.	Heavy oil (upgrade only)	Proposed	100	early 1980s	0.7
Imperial Oil, Ltd.	Heavy oil (full production)	Proposed	120	mid 1980s	4.0

The federal government, together with the provincial governments of Alberta and Ontario, rescued Syncrude by providing the necessary equity capital and by granting tax concessions, subsidies, and a guarantee that its output would be sold at world prices. With this help, the project continued and is scheduled to come into partial production next year with 52,000 b/d of capacity.

Soaring construction costs and Syncrude's near demise brought three other proposed tar sand projects to a halt. While they had received technical approval from Alberta, all three projects were stymied by the increasingly apparent technical and financial uncertainties. Moreover, both the federal and provincial governments were reluctant to grant the newer projects concessions similar to those extended to Syncrude.

While tar sand development has gone through its ups and downs, longstanding production of heavy oil from the Lloydminster fields has continued. Production now averages about 50,000 b/d and could be increased except for the limited market for this type of crude. Also, until recently oil prices were not high enough to justify the cost of upgrading these heavy crudes to a readily marketable refinery feedstock.

Prospects are Improving as Oil Prices Rise

Rising world oil prices are now reviving the oil companies' interest in nonconventional crude production. Ottawa also recently renewed its interest in tar sands and heavy oil development because of the disappointing results achieved thus far from Arctic and offshore oil exploration. Since early 1977, the federal government has urged the provinces to grant tax and royalty concessions to the oil companies in order to accelerate development. Toward the end of the year, Ottawa introduced legislation to tax all crude oil refined in Canada with the proceeds to be used to subsidize nonconventional crude output.

The new climate induced Shell Canada to resurrect its plan to build a 125,000-b/d tar sands plant. The firm is again actively seeking partners and negotiating tax/royalty arrangements with Alberta and Ottawa. Shell estimates the cost of this project at $3 billion to $4 billion. Husky Oil is also forming a consortium to build a 100,000-b/d plant to upgrade heavy oil. Imperial Oil, already involved in the Syncrude project, has recently proposed the first large-scale project for in situ recovery and upgrading of 120,000 b/d of heavy oil. This project will require an investment of $4 billion, or more than $33,000 per daily barrel of capacity.

New interest is also being shown in developing techniques to recover oil from deep tar sand deposits. Petro-Canada, the national oil company, is negotiating with Japanese interests to finance and build a $75 million pilot project to develop a new method for in situ exploitation.

But Many Problems Remain

Despite reviving interest, world oil prices are still not high enough to justify the projects now being proposed. While price levels and tax/royalty arrangements are now adequate to insure Syncrude a 10-percent return on its investment, output from the new projects will need much higher prices because of the larger investments they require. The Shell and Imperial projects probably will cost almost twice that of Syncrude, although capacity of the three plants will be approximately the same.

Moreover, most companies may demand a higher rate of return than Syncrude now expects. Imperial Oil's president recently stated that the risks involved in heavy oil development called for a 20-percent return on capital. Clearly the new projects are being considered on the hope both that adequate tax/royalty concessions will ultimately be forthcoming from the provincial and federal governments and that prices will be high enough to make the new plants profitable when they come into production in the mid-to-late 1980s.

Neither Ottawa nor Alberta and Saskatchewan have yet announced a comprehensive tax policy for nonconventional oil development. The tax/royalty arrangements for each project are being negotiated separately, with the provinces and Ottawa determined not to concede more than is necessary. The lack of a general policy combined with continuing technical and financial uncertainties seriously hampers negotiations between the governments and the oil companies

The Outlook: Slow Development

If all projects now under construction or consideration are brought to completion, capacity for nonconventional production would approach 700,000 b/d by 1990. This assumes that Shell and Imperial soon find additional equity capital and reach tax/royalty agreements with Ottawa and Alberta. It also requires that Syncrude's expansion continue until it reaches its full 250,000-b/d capacity. It further assumes that an adquately trained labor force can be attracted to Alberta and that the needed infrastructure can be developed to support these huge projects. Even under these very favorable circumstances, nonconventional output probably would supply little more than one-fourth of Canada's domestic consumption by 1990 and would not fill the gap created by declining conventional production.

For the longer term, large-scale nonconventional oil development will depend heavily on the period required to achieve commercially viable methods for in situ recovery from deep tar sands. It will also depend on the pace at which oil prices increase relative to rising construction and equipment costs. Costs may be further increased by the fact that thermal in situ recovery techniques are themselves relatively large energy consumers. Finally, government tax policies, which can either ease or add to costs, will be an important determinant. (Confidential Noforn)

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EC COAL INDUSTRY REMAINS IN THE DOLDRUMS*

Despite large amounts of government aid, the coal industry in the European Community continues to be characterized by falling production, a shrinking labor force, and rising costs. It suffers from weak demand and strong import competition. Although EC planners anticipate a continued decline through the mid-1980s, sharply higher oil prices within the next few years could brighten the industry's prospects considerably.

The Industry's Decline

Despite efforts in the 1970s to minimize dependence on imported energy, EC coal production has declined steadily since 1964 and is expected to fall another 3 percent this year. The major producers in the Community—the United Kingdom and West Germany—have been forced to continue closing mines and laying off workers. The number of miners in the EC dropped from 369,000 in 1973 to 326,000 in June 1977.

Two major problems have plagued the coal industry in recent years: declining demand for coal by the steel industry and competition from cheaper imports of steam coal. Deliveries of coking coal, which make up about 40 percent of total EC coal output, currently are running 7.3 percent below the 1974 level when EC steel production peaked. Coal imports have been rising steadily in response to increased

European Community: Coal Consumption

Million Tons

	1973	1974	1975	1976	1977 [1]
Production [2]	270.2	242.6 [3]	256.9	247.7	240.6
Net imports	28.9	36.3	39.7	42.4	49.0
Consumption from stocks	2.7	12.0	−14.4	−1.6	−3.6
Apparent consumption	**301.8**	**290.9**	**282.2**	**288.5**	**286.0**

[1] Estimated.
[2] Excluding lignite, which is significant only in West Germany.
[3] A four-month-long miners' strike in the UK during the oil embargo distorted the long-term production trend in 1974-75.

demand from the electric power industry. In 1976, coal consumption for the generation of electricity reached its highest level since 1969. While the large increase last year was principally the result of a shortage of water for hydroelectric generation, demand for steam coal has been rising since 1974 and is expected to increase again this year. Moreover, individual EC governments offer a variety of incentives to promote the use of coal for generating electricity.

European Community: Coal Deliveries to Power Stations [1]

Million Tons

	1974	1975	1976	Jan-Jun 1977
Total	**118.7**	**124.8**	**140.8**	**73.3**
United Kingdom	66.1	79.1	79.6	41.5
West Germany	33.5	25.6	34.0	15.6
France	11.6	13.0	18.8	10.8
Denmark	2.7	3.4	3.4	2.2
Belgium	3.0	2.7	3.0	1.8
Italy	1.0	1.0	1.2	0.6
Netherlands	0.8	0	0.8	0.8

[1] Data are not available for Ireland or Luxembourg.

The Community Tries To Cope

Given the divergent energy interests of Community members, the EC Commission has been unable to devise effective measures to reverse the downward trend in coal production. To date, only one Commission proposal has been approved, and the resulting program is little more than an information-gathering exercise. Under the program, member states must send the Commission quarterly reports on coal imports from outside the Community, including tonnage, average price, country of origin and duration of supply contracts. Member states having little coal of their own, such as Italy, Denmark, and the Netherlands, are concerned that the surveillance program could be used in the future to target import restrictions. The Commission, however, firmly opposes any attempt to restrict imports.

A Commission proposal to allocate nearly $200 million in 1978-80 to finance pithead coal stocks as an energy security measure has met strong opposition. The Italians believe that the United Kingdom and West Germany should finance their own stocks, while the Dutch insist that measures to promote coal consumption should take first priority. West Germany disapproves of the proposal, arguing that it is too narrow in scope and that other energy stocks, such as oil reserves, should be financed as well.

West Germany and the United Kingdom are alone in supporting a Commission proposal to allocate about $600 million over a 15-year period to subsidize investment in powerplants that use EC-produced coal. The noncoal producing members are quite willing to encourage the use of coal but feel that imported coal should be subsidized too. In an effort to compromise, the Commission has offered to allocate 70 to 80 percent of the funds to power stations using any coal while reserving the rest of the funds for those using only EC coal. However, West Germany and the United Kingdom insist that only EC coal be granted such subsidies. The Germans believe the compromise would have them bear much of the burden of financing import competition for their high-cost coal industry.

National Programs

Programs carried out by individual governments have succeeded only in slowing the decline in coal production. The UK's National Coal Board has acknowledged that the multibillion dollar investment program begun in 1974 is unlikely to lead to any increase in coal output by 1985. Most of the funds are to be used to replace depleted capacity. The UK's electric power industry, which consumes 60 percent of coal output, is operating its coal-fired plants at about 85 percent of capacity and foresees slow growth in electric power demand through the mid-1980s. The Central Electricity Generating Board had planned to build only one new coal-fired plant in the next several years but under pressure from the miners has reluctantly agreed to a second if the Treasury will pay the cost of carrying the excess capacity.

For the past 10 years, West Germany has been trying to stem the decline of its coal industry through subsidies and investment aids to both producers and consumers. Bonn also has quotas and tariffs on coal imports and has been financing coal stockpiles since 1973. Government energy planners hope to keep bituminous production capacity from falling below the current 94 million tons a year. This would be 2 percent above estimated 1977 output. Early this year the electric power industry concluded an agreement with the coal industry guaranteeing that power plants will maintain the recent average rate of consumption of bituminous coal—33 million tons—through 1987.

Outlook

The latest forecasts by member countries indicate that EC coal production in 1985 will be about 8 percent below estimated output in 1977. Community planners expect sluggish demand to keep a damper on production. The steel industry slump is

European Community: Coal Production

Thousand Tons

	1975	1976	1977 [1]	1985 [2]
Total	**256,892**	**247,695**	**240,554**	**220,360**
United Kingdom	127,789	122,202	120,400	120,000
West Germany	99,161	96,325	92,000	82,000 [3]
France	22,414	21,879	21,000	11,000
Belgium	7,478	7,238	7,100	7,300
Ireland	48	49	52	58
Italy	2	2	2	2

[1] Estimated.
[2] Projected.
[3] Residual based on EC Commission forecast of Community output in 1985

likely to continue through the mid-1980s. Increased consumption of EC coal by the electric power industry will depend on the price competitiveness of EC coal with imported coal and with other fuels. In West Germany, for example, the cost of domestic coal now is roughly one-third higher than the cost of imported coal or heavy fuel oil and more than double the cost of natural gas.

The outlook could improve considerably within a few years if oil prices begin to rise sharply. While demand for coking coal would remain weak, steam coal consumption almost certainly would increase as industrial users converted from oil to coal. The UK coal industry would benefit most since it is the biggest in the Community and has the largest share of steam coal in its product mix. Under these conditions, annual coal production in the European Community might reach about 250 million tons by 1985, nearly 15 percent more than the EC currently projects. (Confidential)

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FOREIGN R&D IN MAGNETOHYDRODYNAMIC POWER GENERATION*

The only foreign countries with operating magnetohydrodynamic (MHD) facilities more advanced than those of the United States are the USSR and Japan. Nevertheless, no country appears to be in a position to make as widespread commercial use of MHD as the United States, and the United States continues to have a clear lead in development of coal-fired systems. Even in the countries with the most advanced programs, MHD is not likely to have a significant impact on satisfaction of energy needs before the end of the century.

MHD programs in other countries are constrained to developing small generators, studying limited aspects of materials or component development, and developing the theoretical foundations of MHD generation. These programs provide important technical assistance to the major programs in the USSR, Japan, and the United States.

USSR

The Soviet Union has an impressive MHD power generation program that continues to receive attention and support because of its potential for achieving conversion efficiencies as high as 60 percent. The first large-scale, pilot commercial MHD/steam generation plant is planned to be operational near Moscow by 1985. This plant, the MHDS-500, will have an electric output of 250 megawatts from a conventional steam turbine. Successful demonstration of integrated power generation in this pilot plant could lead to construction of the first large-scale, commercial MHD/steam power plant by 1995.

The Soviet program continues to emphasize open-cycle, gas-fired power generators. While acknowledging that coal appears to be the most efficient fuel for MHD power generation, the Soviets now plan to continue to use natural gas in MHD systems until at least 1995 and then switch to coal. Some coal ash injection experiments will continue at the U-02 facility in Moscow to provide materials performance data under coal-slagging conditions.

The Soviet program has also emphasized pilot plant development based on the reasoning that a small installation involving all components of an MHD generating system should be put into operation first. This approach allows testing of materials in

*This article summarizes the findings of a recently published intelligence assessment. Copies of the publication, OSI 77-10097, November 1977, Secret [redacted] may be ordered by calling OSI/IPS, telephone 351-5511. 25X1C actual pilot plant test beds and gives experience in integrated plant operation. The Soviets have also supported research on closed-cycle MHD power generation on a much lower scale because of less optimism about its potential.

The U-25 MHD generator is the showpiece and principal test unit of the Soviet MHD program. The U-25 is noteworthy in that it is the first large MHD generator to combine all elements of an MHD power generation facility and to be connected to an electric utility grid. The U-25 has achieved a power output of 20.4 MWe during a 30-minute test run and successfully operated at power levels up to 12 MWe during a 250-hour test in late April of this year. The U-25 is also being used as a test bed for materials and components for the MHDS-500 facility just as the U-02 was used as a test bed for the U-25 generator.

The latest Soviet electrodes are at about the same level of performance as that attained through current US electrode technology, but poor Soviet instrumentation and data-gathering skills have retarded development of high-performance, long-life electrodes with a lifetime of 500 hours that would make commercial MHD power generation economically feasible. At this time, the USSR has not achieved electrode lifetimes of 100 hours at significant power densities.

The Soviets also lack experience with materials and electrodes for coal-firing conditions. Some small-scale coal slag simulation tests have been conducted using the U-02 generator, and Soviet cermet electrodes were tested recently at the University of Tennessee under coal-slagging conditions. These electrodes lasted 10 to 20 minutes at slagging temperatures, equaling the performance of US electrodes under the same conditions. The Soviets may also receive some information on coal-fired MHD generation as a result of their MHD cooperative program with Poland. Recently the Soviets have begun to assist India in its efforts to develop a coal-fired generator. This assistance is primarily political, but may also be an effort to gain additional information on coal-fired MHD.

Japan

Japan, whose MHD program ranks second to that of the Soviet Union, has the only operational MHD generator using a superconducting magnet. The Japanese lead in applying superconducting magnet technology, which is essential in the development of economically feasible MHD power generation, and will continue to lead at least until the US magnet which was recently installed on the Soviet U-25 MHD generator is fully operational.

Japan is continuing a small, narrowly focused program directed at development of a commercial, open-cycle, oil-fired MHD power generator. The most significant result of this two-phase effort was the successful development of a 3.8-tesla superconducting magnet for the Mark V generator. The first phase of the Japanese program, which called for the development of a highly efficient power generator by means of short test runs on a 1-MWe generator and long-duration test runs on a 1- to 2-kWe generator, has been completed. The second phase, which will center on development of long-duration 0.1-MWe generators as working models of a 10-MWe, long-duration, pilot power plant, began in 1976. A major goal of this seven-year program is to develop a 5-tesla superconducting magnet for the Mark VIII generator. If the second phase is successful, Japan may have an operational, long-duration, 10-MWe MHD power generator in operation by 1995.

Other Countries

Poland supports an MHD program aimed at developing a coal-fired, open-cycle MHD power generator for use as a base load facility. Current generators have achieved 3- to 4-MWt outputs—or about a 1-MWe output—and are being used to develop materials and components. The Polish program does not have the necessary funds and facilities to achieve significant power output levels within the next 25 years.

Closed-cycle and liquid-metal MHD generators have not received as much foreign emphasis for power generation application as has open-cycle generation. As a result, foreign programs tend to be smaller and to show less development. One of the few countries doing advanced work in closed-cycle MHD is the Netherlands. In a program at the University of Technology at Eindhoven, the Dutch are attempting to develop a coal-fired, blowdown generator capable of providing commercial power. Funded by the Netherlands Government, the research is based on past shock-tube experiments. Immediate goals include proving that closed-cycle power generation can compete with open-cycle generation and that a basis for engineering development exists.

MHD programs in other foreign countries tend to be limited by lack of funds, facilities, and skilled workers. These programs are constrained to investigating portions of the MHD power generation problem such as materials and component development, theoretical aspects of MHD power generation, and the economic potential of commercial MHD generators. Some countries do have MHD generators, but these are low-output, research facilities rather than models of commercial electric power generators. Almost from its beginning, research and development in MHD power generation has been supported by extensive international cooperation, international conferences, national symposia with international participation, and bilateral exchanges. These cooperative efforts all serve as forums for information exchange and cooperation. As a result of the free interaction among MHD programs, many of these smaller programs contribute significantly to the larger programs in the USSR, Japan, and the United States.

Technical Note

A magnetohydrodynamic generator is a device for the direct conversion of energy. It transforms heat (thermal energy) by using the interaction of a flowing, ionized (electrically conductive) gas with a strong magnetic field. An MHD generator does not require the intermediate step of rotational machinery (mechanical energy) found in conventional electrical generating systems. Fuel is burned to produce the ionized gas, which passes through a channel in the magnetic field. The resulting interaction of the magnetic field and the gas produces a voltage across electrodes protruding through the channel walls.

There are two basic types of MHD generators: open-cycle and closed-cycle generators. In the open-cycle system, hot gas, produced by the combustion of a fossil fuel, is passed through the channel and exhausted into the atmosphere. In the closed-cycle system, gas is recirculated continuously through the channel in a closed loop and the heat input is supplied by a high-temperature heat exchanger.

Most MHD research is focused on open-cycle generation using coal or coal-derived liquid fuels. Such generators are potentially useful as topping cycles for conventional electrical generating systems, increasing overall system efficiencies from the present level of 40 percent to as much as 60 percent. A simplified schematic of an open-cycle MHD generator used as the topping cycle of a combined MHD/steam generating plant is shown in figure 1.

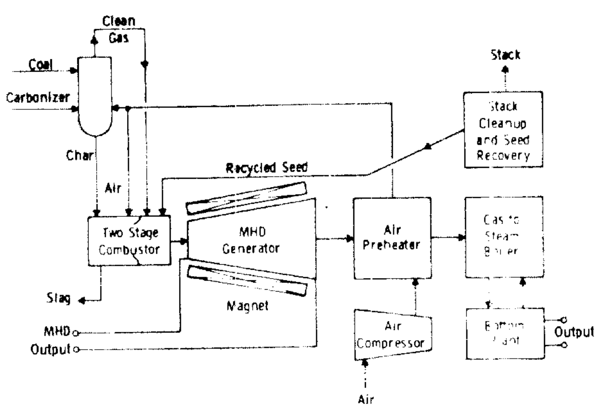

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Figure 1. Open-Cycle MHD Power Generating Plant

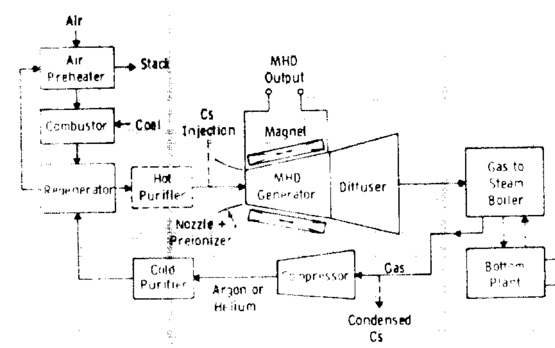

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Figure 2. Closed-Cycle, Nonequilibrium MHD Power Plant

Closed-cycle MHD generators using noble gases seeded with an easily ionized alkali metal as the working fluid appear to be most suitable for operation with a nuclear reactor as the heat source, although other possibilities exist. A simplified schematic of an MHD generator using a seeded noble gas is shown in figure 2.

Liquid alkali metal, closed-cycle MHD generators have been studied because liquid metals possess high electrical conductivity irrespective of temperature. This makes it possible to achieve a cycle with moderate maximum temperatures and to employ AC generators. A simplified schematic of a liquid-metal MHD generator is shown in figure 3.

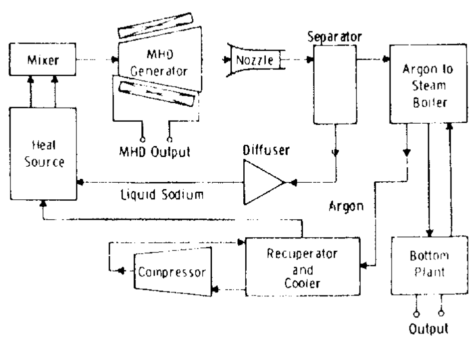

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Figure 3. Liquid-Metal MHD Power Generating Plant

For both open- and closed-cycle generators coal is the most promising fuel choice for future MHD power plants, although first-generation plants, for ease of operation, may burn cleaner fuels such as oil or natural gas. Coal produces a more conductive MHD plasma and is the most abundant fossil fuel. Concern that coal slag might have a detrimental effect on MHD plant operation and reliability has been diminished recently by promising indications that the presence of coal slag may improve channel performance and increase electrode operating life.

A significant and comprehensive study of the economics of MHD/steam power generation and other advanced power plant concepts using coal and coal-derived fuels was recently completed under an interagency funded study entitled, "Energy Conversion Alternatives Study (ECAS)." The results indicated that open-cycle, coal-fired, direct-preheat MHD/steam combined generating systems have potentially one of the highest overall conversion efficiencies and also one of the lowest combined capital and operating costs (COE) of the systems studied. The study also found that improvements may allow closed-cycle MHD/steam generators to approach the efficiency and COE of open-cycle MHD/steam plants, but that liquid-metal MHD/steam systems did not appear to be able to compete with advanced steam generating plants.

Even though the open-cycle MHD/steam generating system was the only MHD system selected for continued study and development in the second phase of the ECAS study, closed-cycle and liquid-metal MHD systems cannot be eliminated as advanced power conversion systems. The limitations of the study and the possibility of improvements resulting from deficiencies identified in the ECAS study have led to efforts to refine and improve both closed-cycle and liquid-metal MHD power generating concepts. (Secret [redacted] 25X1C

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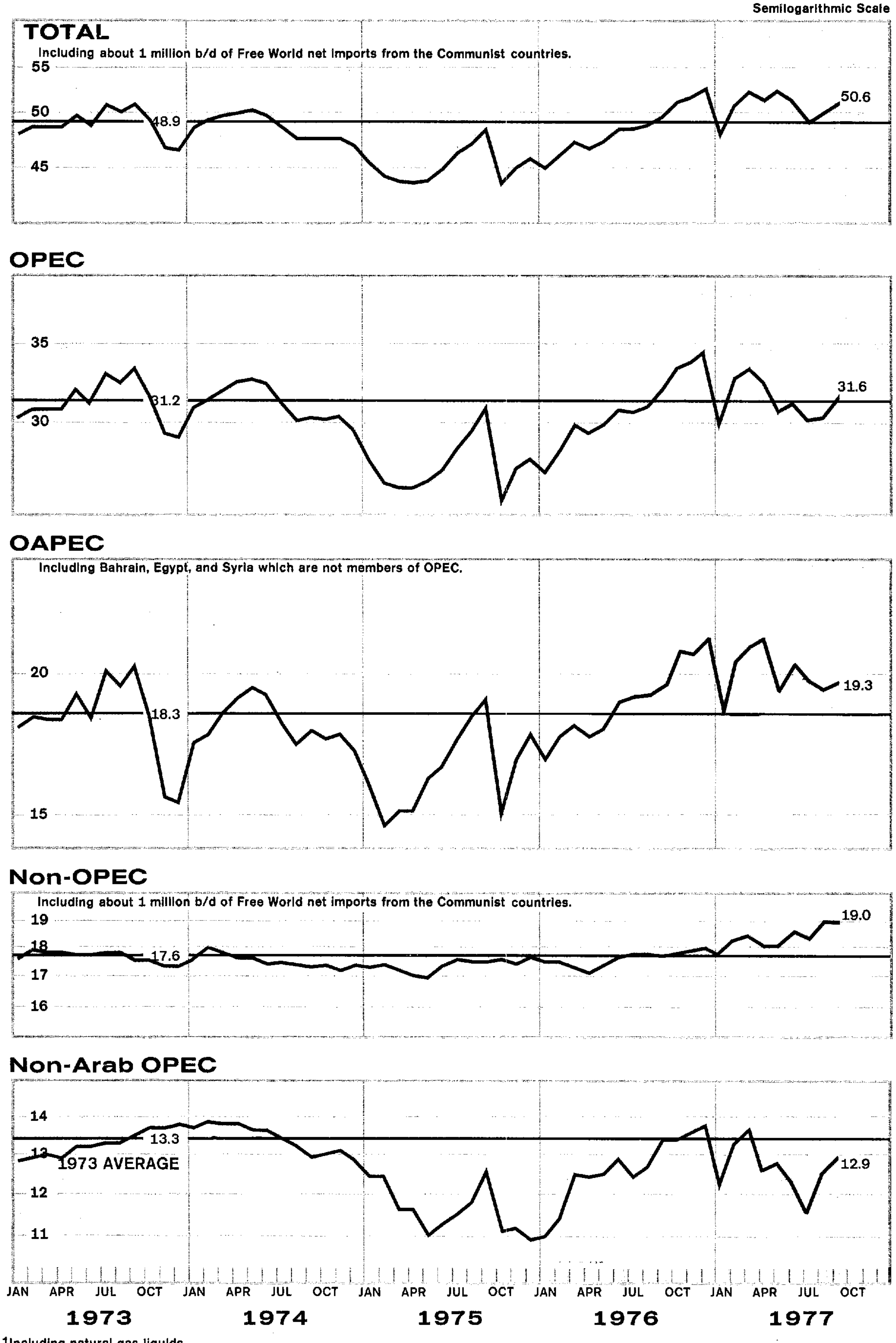
STATISTICAL REVIEW

FREE WORLD OIL PRODUCTION[1] MILLION B/D



1 Including natural gas liquids

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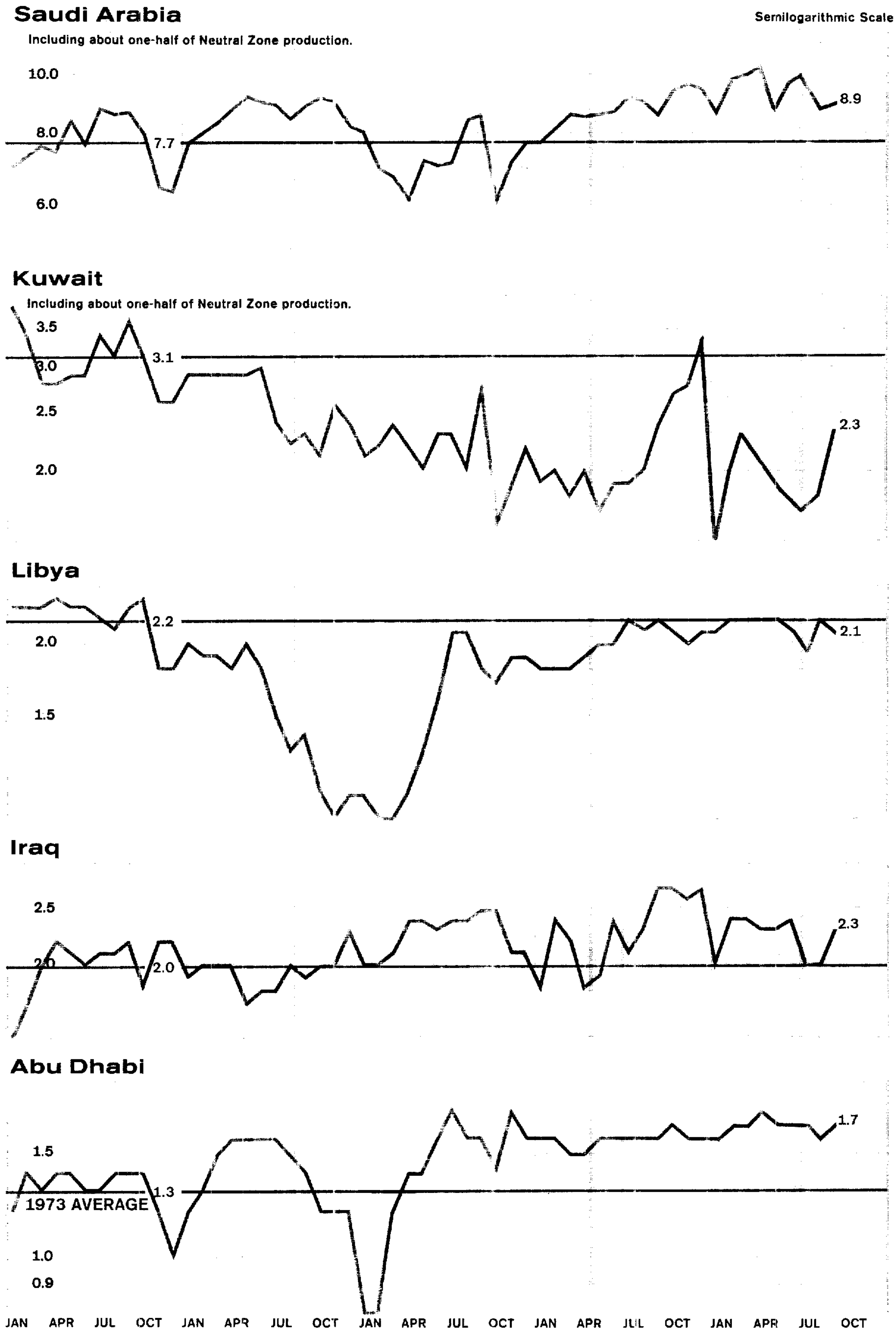
OAPEC OIL PRODUCTION[1] Million b/d



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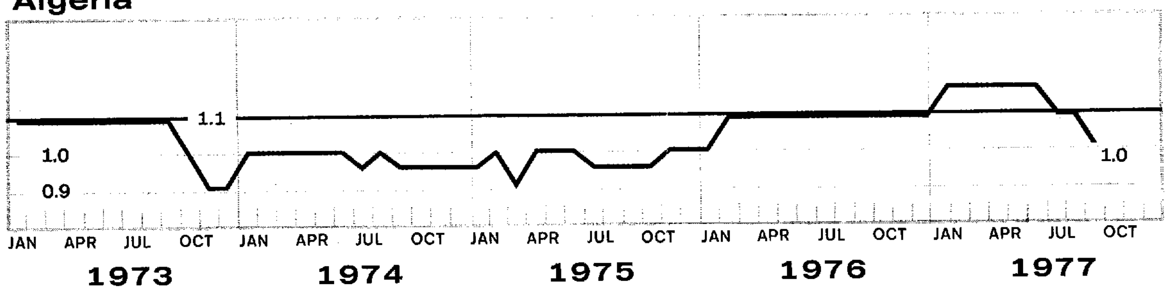
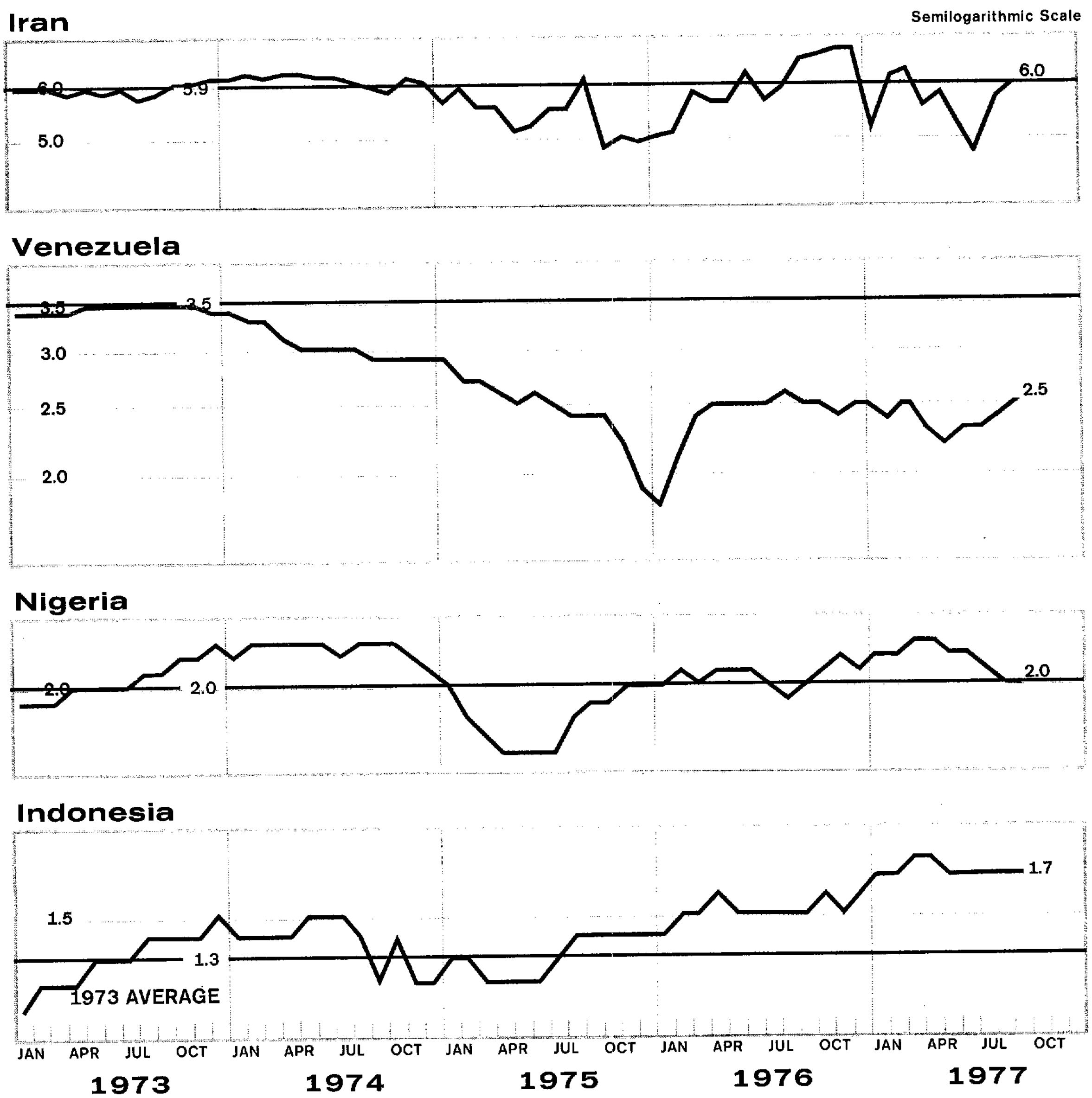
Algeria



[1] Major producers

NON-ARAB OPEC OIL PRODUCTION[1] MILLION B/D



[1] Major producers

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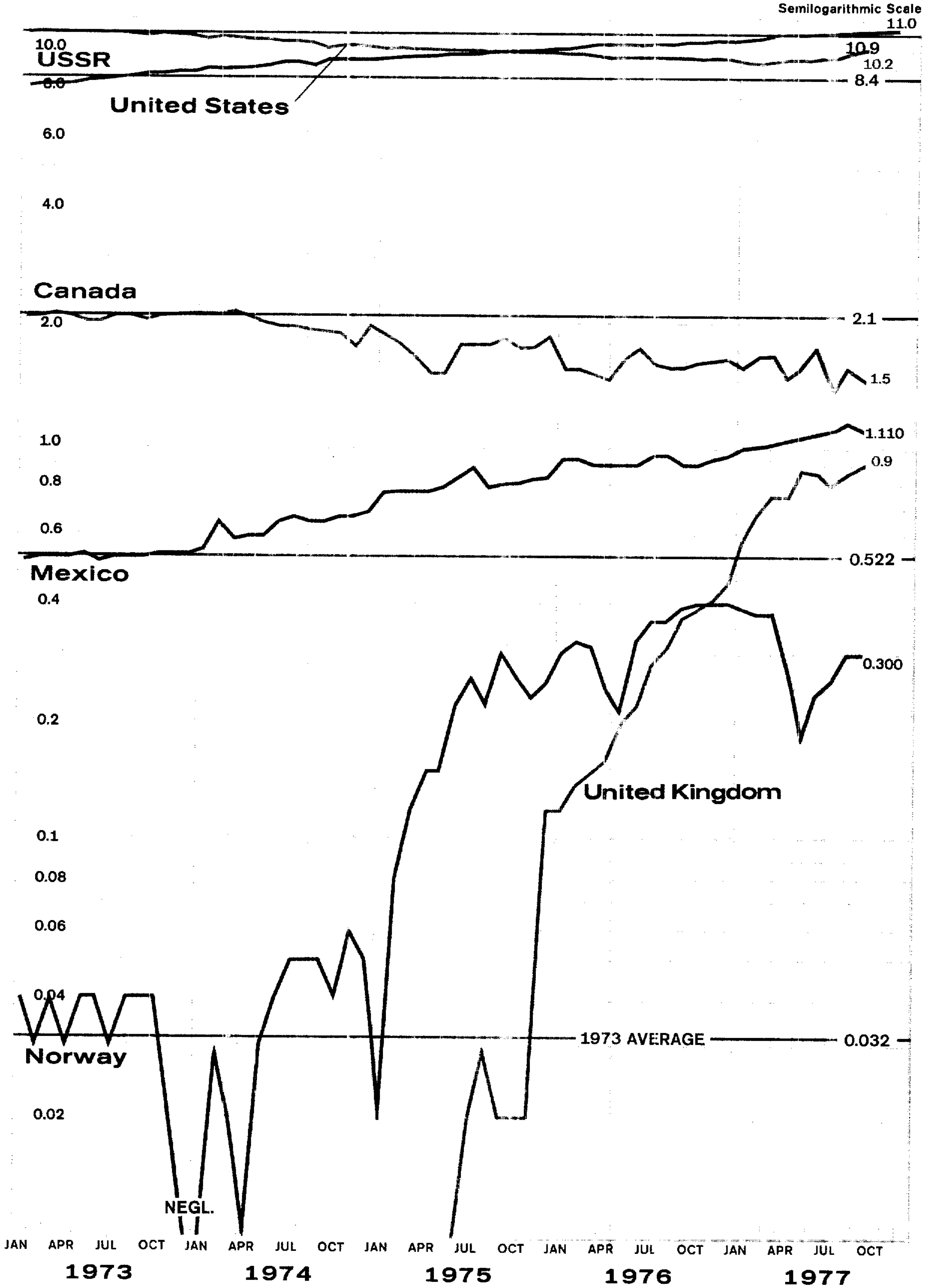
FREE WORLD AND USSR OIL PRODUCTION MILLION B/D



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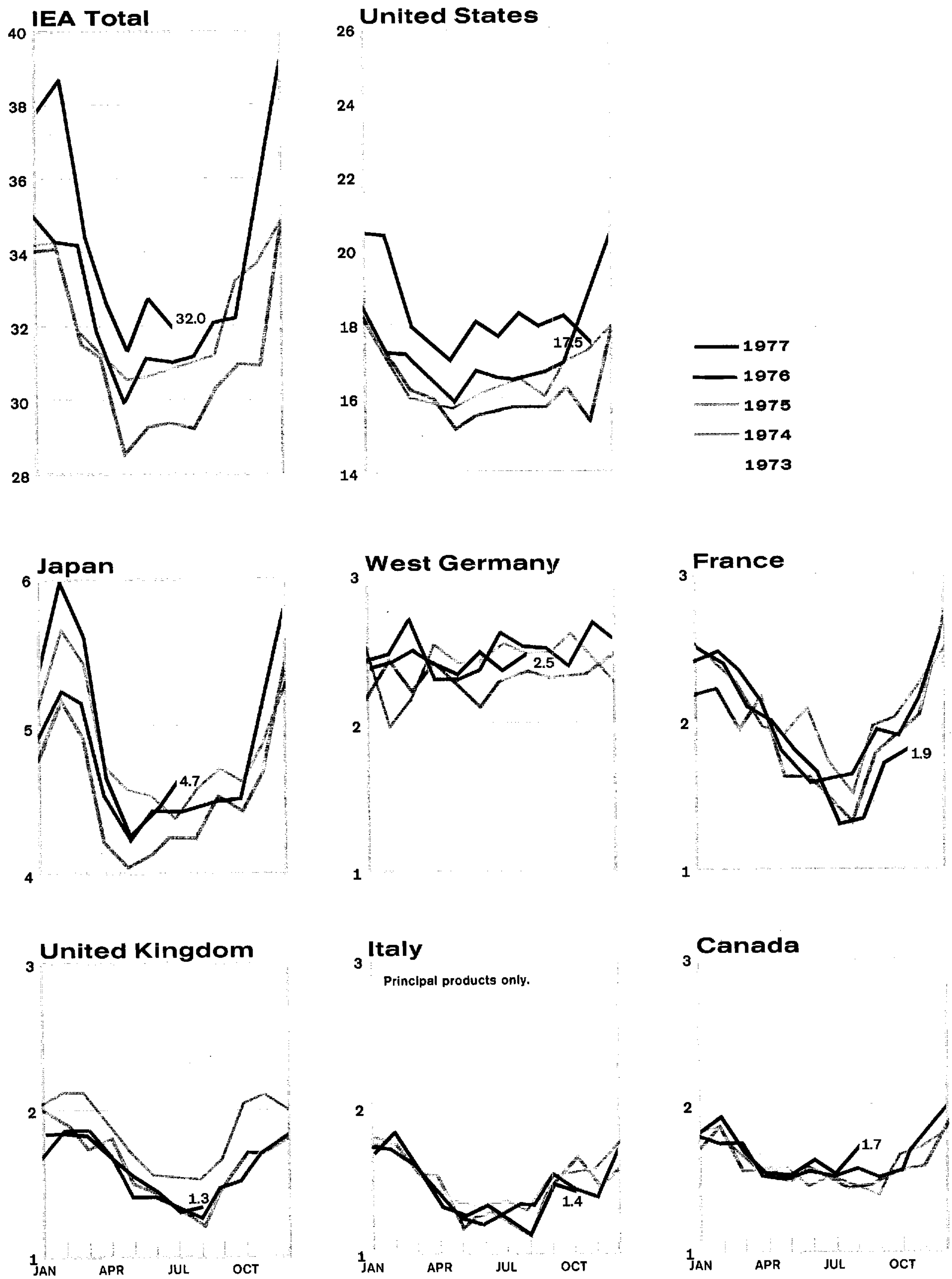
INLAND OIL CONSUMPTION[1] MILLION B/D



1Except for the United States, excluding bunkers, refinery fuel, and losses.

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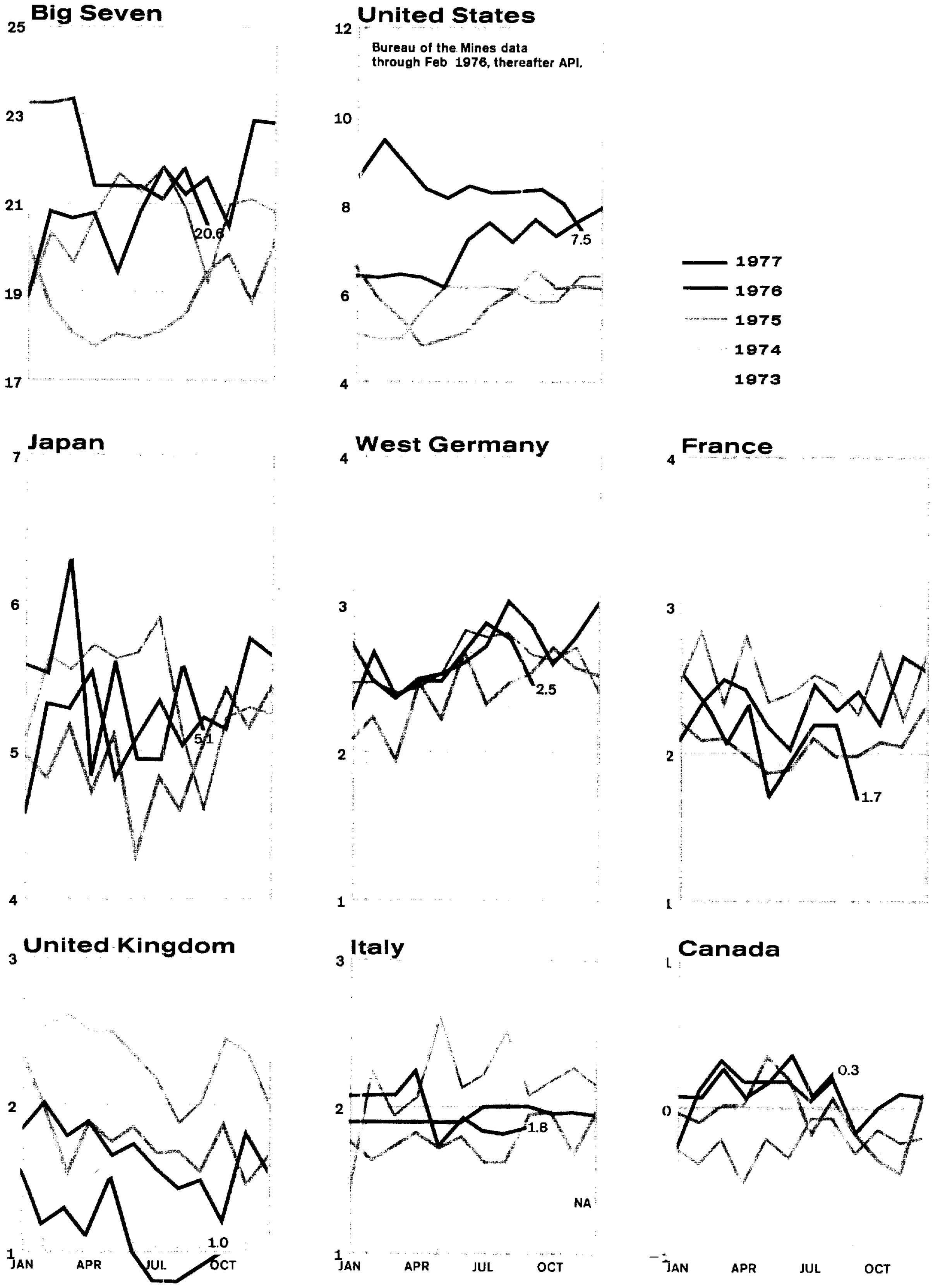
NET OIL IMPORTS MILLION B/D



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World Crude Oil Production, Excluding Natural Gas Liquids

Thousand b/d

					1977					
									Preliminary	
	1973	1974	1975	1976	1st Qtr	2d Qtr	Jul	Aug	Sep	Oct
World	**55,755**	**55,875**	**52,990**	**57,340**	**59,260**	**59,300**	**58,060**	**58,830**	**59,890**	
Free World	**45,850**	**45,145**	**41,470**	**45,100**	**46,510**	**46,400**	**45,080**	**45,810**	**46,890**	
Western hemisphere	16,145	15,290	14,135	13,820	13,840	13,740	13,840	14,350	14,520	
United States [1]	9,210	8,770	8,370	8,120	7,960	8,040	8,190	8,460	8,650	8,610
Venezuela	3,365	2,975	2,345	2,295	2,350	2,170	2,230	2,280	2,380	2,330
Canada [2]	1,800	1,695	1,460	1,300	1,320	1,280	1,130	1,320	1,210	1,240
Mexico [3]	465	580	720	850	900	960	1,000	1,010	1,020	1,030
Argentina	420	410	390	390	430	430	450	450	450	
Ecuador	210	175	160	185	200	190	150	190	140	180
Other	675	685	690	680	680	670	690	640	670	
Eastern hemisphere	29,705	29,855	27,335	31,280	32,670	32,660	31,240	31,460	32,370	
Western Europe	370	380	550	855	1,290	1,320	1,300	1,410	1,430	
Norway	30	35	190	280	340	200	220	270	260	300
United Kingdom	Negl.	Negl.	20	245	630	800	770	820	860	840
Other	340	345	340	330	320	320	310	320	310	
Middle East	21,215	21,855	19,590	22,145	22,300	22,140	21,210	21,140	22,180	
Saudi Arabia [4]	7,595	8,480	7,075	8,575	9,310	9,400	9,800	8,630	8,690	8,650
Iran	5,860	6,020	5,350	5,885	5,790	5,420	4,710	5,660	5,970	5,570
Kuwait [4]	3,020	2,545	2,085	2,145	1,850	1,850	1,630	1,790	2,280	1,860
Iraq	2,020	1,970	2,260	2,415	2,230	2,330	2,000	2,000	2,300	2,200
United Arab Emirates	1,535	1,680	1,665	1,935	2,010	2,070	2,050	1,930	1,990	2,000
Abu Dhabi	1,305	1,410	1,370	1,585	1,660	1,720	1,720	1,600	1,650	1,650
Dubai	230	240	255	310	320	320	310	310	320	330
Sharjah	0	30	40	40	40	30	20	20	20	20
Qatar	570	520	440	495	420	410	390	500	340	520
Oman	295	290	340	365	370	350	330	330	310	330
Syria	100	120	185	200	200	190	180	180	180	
Other	220	230	190	130	120	120	120	120	120	
Africa	5,900	5,370	4,980	5,800	6,330	6,420	5,940	6,140	6,010	
Nigeria	2,055	2,255	1,785	2,070	2,220	2,240	2,060	2,020	2,030	1,950
Libya	2,175	1,520	1,480	1,935	2,130	2,150	1,890	2,130	2,030	2,100
Algeria	1,070	960	960	990	1,070	1,060	1,000	1,000	950	950
Gabon	150	200	225	225	220	220	230	230	230	230
Egypt	165	145	250	330	370	430	440	440	450	
Angola/Cabinda	160	170	140	110	170	160	160	160	160	
Other	125	120	140	140	150	160	160	160	160	
Asia-Pacific	2,220	2,250	2,215	2,480	2,750	2,780	2,790	2,770	2,750	
Australia	370	390	410	425	430	430	440	440	420	
Indonesia	1,340	1,375	1,305	1,505	1,690	1,700	1,690	1,670	1,670	1,640
Malaysia-Brunei	320	290	300	330	380	400	410	410	410	
Other	190	195	200	220	250	250	250	250	250	
Communist Countries	**9,905**	**10,730**	**11,520**	**12,240**	**12,750**	**12,900**	**12,980**	**13,020**	**13,000**	
USSR	8,420	9,020	9,630	10,170	10,510	10,660	10,740	10,780	10,760	
China	1,090	1,310	1,490	1,670	1,840	1,840	1,840	1,840	1,840	
Romania	285	290	290	290	290	290	290	290	290	
Other	110	110	110	110	110	110	110	110	110	

[1] Natural gas liquids amounted to an estimated 1.6 million b/d in Oct.
[2] Natural gas liquids amounted to an estimated 340,000 b/d in Oct.
[3] Natural gas liquids amounted to an estimated 95,000 b/d in Oct.
[4] Including about one-half of Neutral Zone crude oil production, which amounted to about 360,000 b/d in Oct.

Free World Crude Oil Production, Including Natural Gas Liquids

Thousand b/d

	1973	1974	1975	1976	1977 1st Qtr	1977 2d Qtr	1977 Jul	1977 Aug	1977 Sep	1977 Oct
Free World [1]	**48,975**	**48,565**	**44,970**	**48,910**	**50,210**	**50,100**	**48,780**	**49,510**	**50,590**	
Non-OPEC Producers [1]	**17,665**	**17,505**	**17,425**	**17,745**	**18,140**	**18,310**	**18,370**	**18,900**	**19,010**	
United States	10,950	10,460	10,000	9,725	9,540	9,620	9,770	10,040	10,230	10,190
Canada	2,120	2,005	1,770	1,585	1,610	1,570	1,420	1,610	1,500	1,530
United Kingdom	Negl.	Negl.	25	285	680	350	820	870	910	890
Norway	30	35	195	300	375	235	255	305	295	335
Mexico	535	660	800	935	995	1,055	1,095	1,105	1,115	1,125
Other [2]	3,530	3,545	3,735	3,815	4,040	4,080	4,110	4,070	4,060	
OPEC	**31,310**	**31,060**	**27,545**	**31,165**	**32,070**	**31,790**	**30,410**	**30,610**	**31,580**	**30,760**
Saudi Arabia [3]	7,685	8,610	7,215	8,760	9,510	9,600	10,000	8,830	8,890	8,850
Kuwait [3]	3,080	2,595	2,135	2,200	1,910	1,910	1,690	1,850	2,340	1,920
Libya	2,210	1,540	1,510	1,970	2,165	2,185	1,925	2,165	2,065	2,135
Iraq	2,020	1,970	2,260	2,415	2,235	2,335	2,005	2,005	2,305	2,205
United Arab Emirates	1,535	1,680	1,665	1,935	2,020	2,080	2,060	1,940	2,000	2,010
Abu Dhabi	1,305	1,410	1,370	1,585	1,670	1,730	1,730	1,610	1,660	1,660
Dubai	230	240	255	310	310	320	310	310	320	330
Sharjah	0	30	40	40	40	30	20	20	20	20
Algeria	1,100	1,010	1,020	1,075	1,170	1,160	1,100	1,100	1,050	1,050
Qatar	570	525	450	505	430	420	400	510	350	530
Iran	5,900	6,065	5,395	5,930	5,840	5,470	4,760	5,710	6,020	5,620
Venezuela	3,455	3,060	2,420	2,370	2,430	2,250	2,310	2,360	2,460	2,410
Nigeria	2,055	2,255	1,785	2,070	2,220	2,240	2,060	2,020	2,030	1,950
Indonesia	1,340	1,375	1,305	1,525	1,720	1,730	1,720	1,700	1,700	1,670
Gabon	150	200	225	225	220	220	230	230	230	230
Ecuador	210	175	160	185	200	190	150	190	140	180

[1] Free World and Non-OPEC Producers totals include net Communist imports of about 500,000 b/d in 1973, 800,000 b/d in 1974, 900,000 b/d in 1975, 1,100,000 b/d in 1976, and 900,000 b/d in 1977.

[2] Including Bahrain, Egypt, and Syria.

[3] Including about one-half of Neutral Zone production.

World Natural Gas Liquids (NGL) Production [1]

Thousand b/d

	1973	1974	1975	1976	1977
World	**2,845**	**2,860**	**2,855**	**2,975**	**3,075**
Free World	**2,625**	**2,620**	**2,600**	**2,710**	**2,800**
OPEC	**345**	**385**	**410**	**510**	**580**
Non-OPEC	**2,280**	**2,235**	**2,190**	**2,200**	**2,220**
Western Hemisphere	2,275	2,220	2,150	2,105	2,100
United States	1,740	1,690	1,630	1,605	1,580
Venezuela	90	85	75	75	80
Canada	320	310	310	285	290
Mexico	70	80	80	85	95
Other	55	55	55	55	55
Eastern Hemisphere	350	400	450	605	700
Western Europe	35	35	45	95	120
Norway	0	0	5	20	35
United Kingdom	0	0	15	40	50
Other	35	35	35	35	35
Middle East	190	230	245	295	335
Saudi Arabia	90	130	140	185	200
Iran	40	45	45	45	50
Kuwait	60	50	50	55	60
Qatar	0	5	10	10	10
Abu Dhabi	0	0	0	0	10
Iraq	0	0	0	0	5
Africa	65	70	90	120	135
Libya	35	20	30	35	35
Algeria	30	50	60	85	100
Asia-Pacific	60	65	70	95	110
Australia	50	50	50	55	60
Indonesia	0	0	0	20	30
Other	10	15	20	20	20
Communist Countries	**220**	**240**	**255**	**265**	**275**
USSR	210	230	240	250	260
China	N.A.	N.A.	N.A.	N.A.	N.A.
Other	10	10	15	15	15

[1] Estimated.

OAPEC[1] and OPEC[2] Countries: Crude Oil Production, Excluding Natural Gas Liquids

Thousand b/d

					1977					
									Preliminary	
	1973	1974	1975	1976	1st Qtr	2d Qtr	Jul	Aug	Sep	Oct
Total OAPEC (thousand b/d)	**18,090**	**17,735**	**16,165**	**18,730**	**19,300**	**19,600**	**19,110**	**18,320**	**18,920**	
% change from Sep 1973[3]		−11	−19	−7	−4	−2	−5	−9	−6	
% change from Dec 1976[4]					−8	−7	−9	−13	−10	
Total OPEC (thousand b/d)	**30,965**	**30,675**	**27,135**	**30,655**	**31,490**	**31,210**	**29,830**	**30,030**	**31,000**	**30,180**
% change from Sep 1973[3]		−7	−18	−7	−4	−5	−9	−9	−6	−8
% change from Dec 1976[4]					−8	−8	−12	−12	−9	−11

[1] The members of the Organization of Arab Petroleum Exporting Countries are Abu Dhabi, Algeria, Bahrain, Egypt, Iraq, Kuwait, Libya, Qatar, Saudi Arabia, and Syria.

[2] The membership of the Organization of Petroleum Exporting Countries consists of OAPEC members (excluding Bahrain, Egypt, and Syria), plus Dubai, Ecuador, Gabon, Indonesia, Iran, Nigeria, Sharjah, and Venezuela.

[3] In Sep 1973, the pre-crisis level of output, OAPEC countries produced 20,038 b/d and OPEC countries 32,956 b/d.

[4] In Dec 1976, the post-crisis peak of output, OAPEC countries produced 21,060 b/d and OPEC countries 34,070 b/d.

OAPEC and OPEC Countries: Crude Oil Production Capacity

Thousand b/d

	Estimated Productive Capacity[1]	Underutilization of Productive Capacity	
		Sep	Oct
Saudi Arabia[2]	10,500	1,810	1,850
Kuwait[2]	3,300	1,020	1,440
Libya	2,300	270	200
Iraq	3,000	700	800
Abu Dhabi	2,000	350	350
Algeria	1,080	130	130
Qatar	600	260	80
Egypt	450	0	
Syria	200	20	
Bahrain	60	10	
Total OAPEC	**23,490**	**4,570**	
Iran	6,700	730	1,130
Venezuela	2,600	220	270
Nigeria	2,300	270	350
Indonesia	1,700	30	60
Dubai	340	20	10
Gabon	250	20	20
Ecuador	225	85	45
Sharjah	50	30	30
Total OPEC[3]	**36,945**	**5,945**	**6,765**

[1] Estimated at maximum efficient rate (MER) of production. In some cases output can exceed the MER for short periods of time without damaging the fields.

[2] Including about one-half of Neutral Zone capacity production.

[3] OAPEC members (excluding Bahrain, Egypt, and Syria), plus the other countries shown.

A Note on Petroleum Reserves

Any estimate of oil and natural gas reserves must be treated as rough approximation. Few countries publish official reserve estimates, and there is no consistent rigorous definition of reserves. Moreover, the volume of oil and/or gas in place, even in a well-delineated field, can never be precisely accurate; estimates of commercially recoverable oil and natural gas are usually made not by reference to existing technology but by reference to the production system currently in use, and even this can provide only an approximation. Assessments of proved reserves therefore do not mean absolute world availability; they are only an indication of the quantity of oil that is technically and economically feasible to extract with current techniques at current prices.

CIA's reserve figures are for *proved and probable* reserves and are based on the best available published information and on our own judgemental analysis in cases where we have unique information. CIA uses the restrictive definition of *probable* reserves (as differentiated from *possible* reserves) common in the industry. Our *proved and probable* figure does not differ greatly from the *proved* figure in many cases, such as Venezuela, Iran, and Libya. In these countries, extensive exploration has taken place and extentions of known fields are considered unlikely. In other cases—such as Saudi Arabia, Mexico, and the United Kingdom—differences between *proved* and *proved and probable* reserves are considerably larger.

Estimated Proved and Probable Petroleum Reserves

Area and Country	Crude Oil Billion Barrels	Natural Gas Trillion Cubic Feet
World	**665**	**2,626** [1]
Free World	**600**	**1,764**
Western Hemisphere	96	426
United States [2]	39	219
Mexico	25	43
Venezuela	14	43
Canada [2]	8	71
Ecuador	2	11
Argentina	2	11
Brazil	1	7
Colombia	1	7
Peru	2	7
Trinidad and Tobago	2	7
Eastern Hemisphere	504	1,338
Middle East	392	845
Saudi Arabia	158	106
Kuwait	71	35
Iran [3]	60	600
Iraq	36	35
United Arab Emirates	34	35
Neutral Zone	17	7
Qatar	7	18
Oman	6	3
Syria	2	3
Other	1	3
Africa	59	211
Libya	25	25
Nigeria	19	46
Algeria	7	127
Egypt	4	3
Gabon	1	Negl.
Angola-Cabinda	1	Negl.
Tunisia	1	7
Other	1	3
Western Europe	31	177
United Kingdom	20	46
Norway	8	25
Netherlands	Negl.	71
Spain	1	Negl.
Other	2	35
Asia-Pacific	22	105
Indonesia	14	21
Brunei	2	11
Malaysia	2	14
Australia	2	35
India	2	3
Pakistan	Negl.	21
Communist Countries	**65**	**862**
USSR	40	812
China	20	25
Other	5	25

[1] Equivalent to 470 billion barrels of oil.
[2] Including Arctic gas deposits and natural gas liquids.
[3] Including recent discoveries.

Estimated Imports of Crude Oil and Refined Products
1976

Thousand b/d

	US[1]	Japan	Canada	Western Europe	West Germany	France	UK	Italy	Netherlands	Belgium/Luxembourg	Spain	Other Western Europe
Algeria	437	2	14	443	213	94	19	70	3	3	28	13
Bahrain	3	32	0	8	1	0	6	0	1	0	0	0
Egypt	17	1	2	141	1	13	8	0	11	1	0	107
Iraq	38	128	33	1,222	35	327	105	318	34	1	87	315
Kuwait	9	450	6	702	38	86	229	13	111	8	58	159
Libya	532	41	25	1,135	424	63	57	237	12	0	89	253
Qatar	69	6	0	300	24	58	94	22	50	0	0	52
Saudi Arabia	1,371	1,719	122	3,445	379	877	370	516	354	293	376	280
Syria	1	0	0	107	23	53	3	0	0	28	0	0
United Arab Emirates	319	530	16	789	138	234	74	20	115	26	0	182
Total OAPEC	**2,796**	**2,909**	**218**	**8,292**	**1,276**	**1,805**	**965**	**1,196**	**691**	**360**	**638**	**1,361**
Ecuador	63	0	2	0	0	0	0	0	0	0	0	0
Gabon	46	0	12	65	11	29	1	0	3	0	21	0
Indonesia	573	613	0	7	3	0	0	0	0	0	0	4
Iran	548	974	162	2,440	383	291	399	290	327	73	179	498
Nigeria	1,124	17	36	723	181	155	76	16	195	30	0	70
Venezuela	985	6	302	238	38	36	41	26	11	3	23	60
Total OPEC[2]	**6,114**	**4,486**	**730**	**11,509**	**1,867**	**2,250**	**1,465**	**1,528**	**1,215**	**437**	**861**	**1,886**
Canada	599	0	0	6	0	0	0	0	0	0	0	6
Mexico	91	0	0	Negl.	0	0	0	0	0	0	0	Negl.
Other	470	716	24	1,757[3,4]	917	282	570	740	208	288	123	897
Total	**7,295**	**5,235**	**756**	**13,528**	**2,809**	**2,598**	**2,052**	**2,268**	**1,435**	**754**	**984**	**2,896**

[1] Products traced to source of crude oil.
[2] OAPEC members excluding Bahrain, Egypt, and Syria plus other countries shown.
[3] Because of intra-European trade, components do not add to the totals shown.
[4] Other and unknown.

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Selected Developed Countries: Crude Oil Imports, by Source

	Thousand b/d							Percent of Total	
	Sep 1973 (Pre-Crisis Level)	1974	1975	1976	1977 1st Qtr	1977 2d Qtr	1977 Jul [1]	Sep 1973	Jul 1977
United States [2]									
Algeria	124	180	264	408	527	485	555	3.6	8.2
Egypt	0	9	5	17	12	43	NA	0	0
Iraq	17	0	2	26	28	105	100	0.5	1.5
Kuwait	44	5	4	1	64	61	50	1.3	0.7
Libya	153	4	223	444	641	774	625	4.4	9.2
Qatar	41	17	18	24	39	68	90	1.2	1.3
Saudi Arabia	599	438	701	1,222	1,371	1,524	1,342	17.3	19.8
United Arab Emirates [3]	88	69	117	255	336	327	280	2.5	4.1
Other [4]	0	0	0	0	6	4	0	0	0
Total OAPEC	**1,066**	**722**	**1,334**	**2,397**	**3,024**	**3,391**	**3,042**	**30.7**	**44.9**
Ecuador	33	42	57	51	51	75	32	0.9	0.5
Gabon	0	23	27	26	37	22	38	0	0.6
Indonesia	249	284	379	536	565	530	480	7.2	7.1
Iran	205	463	278	298	518	530	835	5.9	12.3
Nigeria	409	697	746	1,014	1,278	1,153	477	11.8	7.0
Venezuela	405	319	395	241	173	292	326	11.7	4.8
Total OPEC [5]	**2,367**	**2,541**	**3,211**	**4,546**	**5,628**	**5,949**	**5,930**	**68.2**	**87.5**
Canada	998	791	600	371	282	275	238	28.8	3.5
Mexico	8	2	70	87	144	163	159	0.2	2.3
UK	0	0	Negl.	13	86	64	NA	0	NA
Norway	0	1	12	35	54	41	NA	0	NA
Other	98	133	207	218	308	328	454	2.8	6.7
Total	**3,471**	**3,477**	**4,105**	**5,287**	**6,520**	**6,867**	**6,781**	**100.0**	**100.0**

	Thousand b/d								Percent of Total	
	Sep 1973 (Pre-Crisis Level)	1974	1975	1976	1977 1st Qtr	1977 2d Qtr	1977 Jul	1977 Aug	Sep 1973	Aug 1977
Canada										
Algeria	0	12	Negl.	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0	0
Iraq	23	10	31	29	17	6	36	28	2.4	3.7
Kuwait	0	25	29	2	0	0	0	0	0	0
Libya	56	9	9	20	0	0	0	0	6.0	0
Qatar	0	0	2	0	0	0	0	0	0	0
Saudi Arabia	82	91	165	109	188	168	145	183	8.7	23.9
United Arab Emirates [3]	49	24	46	57	4	11	1	10	5.2	1.3
Other [4]	0	0	0	0	0	0	0	0	0	0
Total OAPEC	**210**	**171**	**282**	**217**	**209**	**185**	**182**	**221**	**22.3**	**28.8**
Ecuador	13	6	1	0	0	0	0	0	1.4	0
Gabon	0	0	3	0	0	0	0	0	0	0
Indonesia	0	0	0	0	0	0	0	0	0	0
Iran	149	199	202	157	145	126	94	253	15.9	33.0
Nigeria	39	14	17	28	11	7	0	0	4.1	0
Venezuela	485	351	265	269	263	262	215	211	51.6	27.5
Total OPEC [5]	**896**	**741**	**770**	**671**	**628**	**580**	**491**	**685**	**95.3**	**89.3**
Other	44	79	54	49	83	109	123	82	4.7	10.7
Total	**940**	**820**	**824**	**720**	**711**	**689**	**614**	**767**	**100.0**	**100.0**

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Selected Developed Countries: Crude Oil Imports, by Source
(Continued)

	Thousand b/d									Percent of Total	
	Sep 1973 (Pre-Crisis Level)	1974	1975	1976	1977 1st Qtr	1977 2d Qtr	1977 Jul	1977 Aug	1977 Sep	Sep 1973	Sep 1977
Japan											
Algeria	0	5	6	0	0	4	0	11	0	0	0
Egypt	0	2	0	Negl.	0	0	0	0	0	0	0
Iraq	0	40	92	127	162	162	318	132	59	0	1.3
Kuwait	488	479	416	342	350	399	255	403	513	10.0	11.5
Libya	31	70	59	41	11	35	13	21	13	0.6	0.3
Qatar	0	6	3	2	28	21	0	51	30	0	0.7
Saudi Arabia	1,148	1,304	1,355	1,572	1,846	1,429	1,445	1,723	1,407	23.5	31.6
United Arab Emirates [3]	511	533	408	530	586	494	486	579	493	10.5	11.1
Other [4]	0	0	0	0	0	0.	0	0	0	0	0
Total OAPEC	**2,181**	**2,439**	**2,339**	**2,614**	**2,983**	**2,544**	**2,517**	**2,920**	**2,515**	**44.7**	**56.5**
Ecuador	0	0	0	0	0	0	0	0	0	0	0
Gabon	0	0	0	0	0	0	0	0	0	0	0
Indonesia	638	671	518	553	669	665	628	706	654	13.1	14.7
Iran	1,554	1,222	1,147	928	957	771	666	824	729	31.9	16.4
Nigeria	101	87	71	17	0	0	0	0	0	2.1	0
Venezuela	7	9	5	6	7	7	7	0	10	0.1	0.2
Total OPEC [5]	**4,481**	**4,426**	**4,080**	**4,118**	**4,616**	**3,987**	**3,818**	**4,450**	**3,908**	**91.9**	**87.8**
Other	397	370	459	483	568	485	580	490	542	8.1	12.2
Total	**4,878**	**4,798**	**4,539**	**4,601**	**5,184**	**4,472**	**4,398**	**4,940**	**4,450**	**100.0**	**100.0**

	Thousand b/d								Percent of Total	
	Sep 1973 (Pre-Crisis Level)	1974	1975	1976	1977 1st Qtr	1977 2d Qtr	1977 3d Qtr	1977 Oct	Sep 1973	Oct 1977
United Kingdom										
Abu Dhabi	28	86	47	29	35	44	51	0	1.5	0
Algeria	46	10	29	18	14	8	8	0	2.4	0
Egypt	0	5	16	3	0	11	23	31	0	2.4
Iraq	67	64	52	105	114	110	107	120	3.5	9.2
Kuwait	293	343	218	229	181	217	166	198	15.3	15.1
Libya	98	175	53	45	20	50	56	50	5.1	3.8
Qatar	73	96	77	94	78	24	18	3	3.8	0.2
Saudi Arabia	530	712	444	370	405	457	305	400	27.6	30.5
Other [4]	0	0	16	3	0	0	0	0	0	0
Total OAPEC	**1,135**	**1,491**	**952**	**896**	**847**	**921**	**734**	**802**	**59.2**	**61.2**
Dubai	48	26	30	45	36	36	50	18	2.5	1.4
Ecuador	0	0	0	0	0	0	0	0	0	0
Gabon	0	14	0	0	0	0	0	0	0	0
Indonesia	0	0	0	0	0	0	0	0	0	0
Iran	317	290	351	398	414	269	194	188	16.5	14.3
Nigeria	188	158	117	76	70	13	11	0	9.8	0
Sharjah	0	0	0	0	0	0	0	0	0	0
Venezuela	66	66	64	29	16	22	27	12	3.4	0.9
Total OPEC [5]	**1,754**	**2,040**	**1,482**	**1,438**	**1,383**	**1,250**	**993**	**989**	**91.5**	**75.4**
Other	163	226	261	326	263	240	239	291	8.5	22.2
Total	**1,917**	**2,271**	**1,775**	**1,770**	**1,646**	**1,501**	**1,255**	**1,311**	**100.0**	**100.0**

Selected Developed Countries: Crude Oil Imports, by Source
(Continued)

	Thousand b/d									Percent of Total	
	Sep 1973 (Pre-Crisis Level)	1974	1975	1976	1977 1st Qtr	1977 2d Qtr	1977 Jul	1977 Aug	1977 Sep	Sep 1973	Sep 1977
West Germany											
Algeria	239	201	204	210	227	164	215	234	155	10.4	8.2
Egypt	0	0	4	0	0	0	0	0	0	0	0
Iraq	43	73	28	35	31	21	0	60	7	1.9	0.4
Kuwait	102	82	54	25	24	16	0	8	0	4.4	0
Libya	418	320	296	421	470	354	408	380	339	18.2	17.9
Qatar	18	20	25	24	13	24	0	47	20	0.8	1.1
Saudi Arabia	710	514	371	378	376	404	545	474	475	30.9	25.0
United Arab Emirates [3]	162	169	158	125	155	156	140	221	204	7.1	10.8
Other [4]	26	19	16	25	22	25	26	52	10	1.1	0.5
Total OAPEC	**1,718**	**1,398**	**1,156**	**1,243**	**1,318**	**1,164**	**1,334**	**1,476**	**1,210**	**74.8**	**63.8**
Ecuador	0	0	0	0	0	0	0	0	0	0	0
Gabon	32	19	21	11	7	10	0	0	0	1.4	0
Indonesia	0	0	0	4	25	8	1	7	23	0	1.2
Iran	248	265	284	380	338	319	288	242	289	10.8	15.2
Nigeria	168	241	202	181	162	177	227	138	140	7.3	7.4
Venezuela	42	38	43	28	16	18	31	9	16	1.8	0.8
Total OPEC [5]	**2,182**	**1,942**	**1,686**	**1,822**	**1,844**	**1,671**	**1,855**	**1,820**	**1,668**	**95.0**	**87.9**
UK	0	0	0	14	52	66	51	89	123	0	6.5
Norway	Negl.	3	12	23	38	12	27	48	24	0	1.3
Other	89	86	89	95	62	81	83	88	72	3.9	3.8
Total	**2,297**	**2,050**	**1,807**	**1,979**	**2,018**	**1,855**	**2,042**	**2,097**	**1,897**	**100.0**	**100.0**

	Thousand b/d									Percent of Total	
	Sep 1973 (Pre-Crisis Level)	1974	1975	1976	1977 1st Qtr	1977 2d Qtr	1977 Jul	1977 Aug	1977 Sep	Sep 1973	Sep 1977
France											
Abu Dhabi	249	268	210	202	186	214	158	147	222	9.0	12.3
Algeria	227	181	118	95	99	92	81	107	98	8.2	5.4
Egypt	1	0	4	13	11	8	0	0	0	Negl.	0
Iraq	375	330	240	335	379	274	436	447	169	13.6	9.3
Kuwait	316	246	134	86	103	57	84	59	0	11.4	0
Libya	131	74	44	62	38	42	74	46	64	4.7	3.5
Qatar	69	70	47	58	84	35	59	60	25	2.5	1.4
Saudi Arabia	623	842	669	870	832	813	834	987	830	22.5	45.9
Other [4]	12	10	41	60	49	60	60	18	23	0.4	1.3
Total OAPEC	**2,003**	**2,021**	**1,507**	**1,781**	**1,781**	**1,595**	**1,786**	**1,871**	**1,431**	**72.5**	**79.1**
Dubai	27	36	43	33	52	31	41	62	0	1.0	0
Ecuador	0	0	0	0	0	0	0	0	0	0	0
Gabon	33	43	27	29	53	44	42	36	57	1.2	3.1
Indonesia	0	0	0	0	0	0	0	0	0	0	0
Iran	216	174	266	294	336	197	102	85	11	7.8	0.6
Nigeria	253	208	175	150	127	160	168	150	119	9.2	6.6
Sharjah	0	0	0	0	0	0	0	0	0	0	0
Venezuela	36	28	15	16	10	14	17	31	15	1.3	0.8
Total OPEC [5]	**2,555**	**2,500**	**1,988**	**2,230**	**2,299**	**1,973**	**2,096**	**2,217**	**1,610**	**92.4**	**89.0**
UK	0	0	0	7	0	28	37	31	24	0	1.3
Norway	0	2	18	46	0	22	17	14	15	0	0.8
Other	196	92	69	61	113	91	79	80	138	7.1	7.6
Total	**2,764 [4]**	**2,604**	**2,120**	**2,417**	**2,472**	**2,182**	**2,289**	**2,360**	**1,810**	**100.0**	**100.0**

Selected Developed Countries: Crude Oil Imports, by Source
(Continued)

	Thousand b/d						Percent of Total	
	4th Qtr 1973 (Pre-Crisis Level)	1974	1975	1976	1977 1st Qtr	1977 2d Qtr	4th Qtr 1973	2d Qtr 1977
Italy								
Algeria	61	49	77	51	22	20	2.4	0.9
Egypt	0	0	0	0	0	0	0	0
Iraq	383	269	374	312	331	327	15.2	15.0
Kuwait	212	130	82	47	167	114		5.3
Libya	597	478	260	340	302	328	23.7	15.0
Qatar	21	57	26	26	24	20	0.8	0.9
Saudi Arabia	692	824	527	545	605	694	27.5	31.8
United Arab Emirates [2]	0	13	33	50	99	34	0	1.6
Other [3]	0	0	0	0	0	0	0	0
Total OAPEC	**1,966**	**1,820**	**1,379**	**1,371**	**1,550**	**1,537**	**78.2**	**70.5**
Ecuador	0	0	0	0	0	0	0	0
Gabon	3	10	6	1	10	0	0.1	0
Indonesia	0	0	0	0	0	0	0	0
Iran	277	301	258	292	250	296	11.0	13.6
Nigeria	9	63	7	7	10	18	0.4	0.8
Venezuela	18	13	20	16	12	34	0.7	1.6
Total OPEC [4]	**2,273**	**2,207**	**1,670**	**1,687**	**1,832**	**1,885**	**90.4**	**86.5**
UK	0	0	0	13	4	0	0	0
Norway	0	0	0	0	0	0	0	0
Other [6]	241	190	271	371	348	295	9.6	13.5
Total	**2,514**	**2,397**	**1,941**	**2,071**	**2,184**	**2,180**	**100.0**	**100.0**

[1] As of July, data are obtained from the Monthly Petroleum Statistics Report, Department of Energy.
[2] Including oil imports from Abu Dhabi and possibly from Dubai and Sharjah, which are not members of OAPEC.
[3] Including, when applicable, Bahrain and Syria.
[4] Consisting of OAPEC members (excluding Bahrain, Egypt, and Syria) plus the other countries shown.
[5] Estimated.
[6] Including data that cannot be distributed by area of origin.

Selected Developed Countries: Trends in Oil Trade

Thousand b/d

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
United States [1]													
1973													
Crude imports	2,732	2,873	3,162	3,049	3,215	3,220	3,501	3,593	3,471	3,740	3,452	2,891	3,244
Product imports	3,079	3,501	3,413	2,551	2,603	2,659	2,671	2,913	2,903	2,785	3,412	3,055	3,012
Total imports	5,811	6,374	6,575	5,600	5,818	5,879	6,172	6,506	6,374	6,525	6,864	5,946	6,256
Exports	210	260	224	275	237	215	240	217	242	221	202	227	231
Net imports	5,601	6,114	6,351	5,325	5,581	5,664	5,932	6,289	6,132	6,304	6,662	5,719	6,025
1974													
Crude imports	2,382	2,248	2,462	3,267	3,908	3,925	4,091	3,924	3,797	3,810	3,958	3,869	3,477
Product imports	2,973	2,973	2,753	2,703	2,580	2,493	2,397	2,434	2,225	2,320	2,704	2,853	2,611
Total imports	5,355	5,221	5,215	5,970	6,488	6,418	6,488	6,358	6,022	6,130	6,662	6,722	6,088
Exports	207	203	196	243	247	238	253	247	171	221	186	231	220
Net imports	5,148	5,018	5,019	5,727	6,241	6,180	6,235	6,111	5,851	5,909	6,476	6,491	5,868
1975													
Crude imports	4,029	3,828	3,656	3,378	3,486	3,905	4,192	4,581	4,689	4,389	4,623	4,476	4,105
Product imports	2,832	2,348	2,074	1,662	1,728	1,502	1,767	1,717	2,115	1,940	1,796	1,949	1,951
Total imports	6,861	6,176	5,730	5,040	5,214	5,407	5,959	6,298	6,804	6,329	6,419	6,425	6,056
Exports	228	248	213	190	202	224	186	203	205	187	166	262	209
Net imports	6,633	5,928	5,517	4,850	5,012	5,183	5,773	6,095	6,599	6,142	6,253	6,163	5,847
1976													
Crude imports	4,594	4,208	4,738	4,790	4,669	5,621	5,792	5,556	5,875	5,699	5,955	5,925	5,287
Product imports	2,016	2,423	1,946	1,805	1,654	1,858	2,099	1,826	2,038	1,808	2,115	2,353	2,008
Total imports	6,610	6,631	6,684	6,595	6,323	7,479	7,891	7,382	7,913	7,507	8,070	8,278	7,295
Exports	156	241	185	222	180	213	242	220	196	198	348	309	226
Net imports	6,454	6,390	6,499	6,373	6,143	7,266	7,649	7,162	7,717	7,309	7,720	7,969	7,069
1977													
Crude imports	6,288	6,652	6,633	6,785	6,821	6,997	6,781	6,572	6,580	6,457	5,940		
Product imports	2,594	3,278	2,529	1,886	1,754	1,816	1,872	2,016	2,170	1,929	1,774		
Total imports	8,882	9,930	9,162	8,671	8,575	8,813	8,653	8,588	8,750	8,386	7,714		
Exports	192	234	207	223	288	225	212	228	214	229	228		
Net imports	8,690	9,696	8,955	8,448	8,287	8,588	8,441	8,360	8,536	8,157	7,486		
Canada													
1973													
Crude imports	945	975	932	772	930	741	1,058	937	940	799	934	802	897
Product imports	163	93	55	37	119	121	122	153	105	132	140	149	130
Total imports	1,108	1,068	987	809	1,049	862	1,180	1,090	1,045	931	1,074	951	1,027
Exports	1,357	1,500	1,364	1,472	1,495	1,446	1,162	1,298	1,300	1,363	1,357	1,237	1,364
Net imports	−249	−432	−377	−663	−446	−584	18	−208	−255	−432	−283	−322	−337
1974													
Crude imports	822	988	717	718	971	763	816	817	672	787	798	721	820
Product imports	96	44	142	33	114	125	89	104	58	75	87	74	83
Total imports	918	1,032	859	751	1,085	888	905	921	730	862	885	795	903
Exports	1,180	1,402	1,056	1,266	1,270	1,220	956	978	1,026	988	1,110	981	1,086
Net imports	−262	−370	−197	−515	−185	−332	−51	−57	−296	−126	−225	−186	−183
1975													
Crude imports	1,052	915	849	804	1,067	850	678	946	716	516	562	929	824
Product imports	48	68	27	46	56	56	48	50	40	57	26	27	41
Total imports	1,100	983	876	850	1,123	906	726	996	756	573	588	956	865
Exports	1,122	1,068	834	815	745	702	893	903	936	921	1,017	848	899
Net imports	−22	−85	42	35	378	204	−167	93	−180	−348	−429	108	−34
1976													
Crude imports	738	783	870	802	793	832	825	728	409	565	690	596	720
Product imports	21	26	30	16	45	45	43	54	23	60	50	20	36
Total imports	759	809	900	818	838	877	868	782	432	625	740	616	756
Exports	1,029	669	569	636	650	676	815	571	603	605	625	612	646
Net imports	−270	140	331	182	188	201	53	211	−171	20	115	4	110
1977													
Crude imports	729	645	752	585	679	802	614	767					
Product imports	28	25	27	19	49	60	37	57					
Total imports	757	670	779	604	728	862	651	824					
Exports	611	568	522	526	515	506	523	487					
Net imports	146	102	257	78	213	356	128	337					
Japan													
1973													
Crude imports	4,662	4,775	4,830	4,864	4,918	5,043	4,697	5,550	4,878	5,483	5,029	5,139	4,992
Product imports	640	803	650	542	664	640	523	507	443	592	533	486	584
Total imports	5,302	5,578	5,480	5,406	5,582	5,683	5,220	6,057	5,321	6,075	5,562	5,625	5,576
Exports	11	33	23	28	19	13	39	31	21	25	13	25	24
Net imports	5,291	5,545	5,457	5,378	5,563	5,670	5,181	6,026	5,300	6,050	5,549	5,600	5,552
1974													
Crude imports	4,467	5,008	4,886	5,120	4,794	4,878	5,204	4,601	4,214	4,763	4,818	4,834	4,798
Product imports	648	671	684	625	858	823	755	624	531	529	569	597	662
Total imports	5,115	5,679	5,570	5,745	5,652	5,701	5,959	5,225	4,745	5,292	5,387	5,431	5,460
Exports	14	25	16	20	24	17	25	93	135	46	79	179	56
Net imports	5,101	5,654	5,554	5,725	5,628	5,684	5,934	5,132	4,610	5,246	5,308	5,252	5,404

Selected Developed Countries: Trends in Oil Trade
(Continued)

Thousand b/d

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
Japan (Continued)													
1975													
Crude imports	4,581	4,502	4,773	4,304	4,765	3,956	4,401	4,120	4,637	4,928	4,611	4,880	4,539
Product imports	471	367	466	445	439	361	487	489	461	518	545	574	469
Total imports	5,052	4,869	5,239	4,749	5,204	4,317	4,888	4,609	5,098	5,446	5,156	5,454	5,008
Exports	80	52	40	38	61	40	42	17	5	7	5	6	32
Net imports	4,972	4,817	5,199	4,711	5,143	4,277	4,846	4,592	5,093	5,439	5,151	5,448	4,976
1976													
Crude imports	3,901	4,683	4,586	4,989	4,217	4,469	4,690	4,391	4,492	4,642	5,165	5,019	4,601
Product imports	699	649	704	563	593	637	669	651	747	504	615	634	634
Total imports	4,600	5,332	5,290	5,552	4,810	5,106	5,359	5,042	5,239	5,146	5,780	5,653	5,235
Exports	3	5	9	4	4	5	5	6	9	4	9	6	6
Net imports	4,597	5,327	5,281	5,548	4,806	5,101	5,354	5,036	5,230	5,142	5,771	5,647	5,229
1977													
Crude imports	5,023	4,857	5,671	4,210	4,955	4,234	4,398	4,940	4,450				
Product imports	584	686	665	632	682	729	561	644	705				
Total imports	5,607	5,543	6,336	4,842	5,637	4,963	4,959	5,584	5,155				
Exports	7	8	8	6	4	11	8	5	7				
Net imports	5,600	5,535	6,328	4,836	5,633	4,952	4,951	5,579	5,148				
France													
1973													
Crude imports	2,897	2,699	2,955	2,728	2,540	2,676	2,288	2,791	2,764	2,797	3,053	2,549	2,728
Product imports	137	174	148	142	176	128	138	169	139	171	126	117	147
Total imports	3,034	2,873	3,103	2,870	2,716	2,804	2,426	2,960	2,903	2,968	3,179	2,666	2,875
Exports	255	260	232	226	317	290	246	307	307	261	253	279	269
Net imports	2,779	2,613	2,871	2,644	2,399	2,514	2,180	2,653	2,596	2,707	2,926	2,387	2,606
1974													
Crude imports	2,686	2,942	2,508	2,990	2,476	2,555	2,580	2,529	2,274	2,725	2,322	2,686	2,604
Product imports	80	121	80	121	144	98	180	152	188	157	134	200	138
Total imports	2,766	3,063	2,588	3,111	2,620	2,653	2,760	2,681	2,462	2,882	2,456	2,886	2,742
Exports	269	230	258	277	257	225	210	211	186	166	220	211	224
Net imports	2,497	2,833	2,330	2,834	2,363	2,428	2,550	2,470	2,276	2,716	2,236	2,675	2,518
1975													
Crude imports	2,234	2,056	2,095	2,047	1,952	1,989	2,130	2,201	2,136	2,199	2,203	2,462	2,120
Product imports	213	266	203	165	127	162	180	100	118	113	131	131	158
Total imports	2,447	2,322	2,298	2,212	2,079	2,151	2,310	2,301	2,254	2,312	2,334	2,593	2,278
Exports	209	221	175	217	190	230	182	302	264	214	267	259	227
Net imports	2,238	2,101	2,123	1,995	1,889	1,921	2,128	1,999	1,990	2,098	2,067	2,334	2,051
1976													
Crude imports	2,175	2,447	2,600	2,500	2,188	2,039	2,456	2,370	2,517	2,180	2,767	2,704	2,417
Product imports	134	143	158	158	128	233	266	218	199	223	170	151	181
Total imports	2,309	2,590	2,758	2,658	2,316	2,272	2,722	2,588	2,716	2,403	2,937	2,855	2,598
Exports	276	325	395	316	272	324	244	288	274	207	268	288	249
Net imports	2,033	2,265	2,363	2,342	2,044	1,948	2,478	2,300	2,442	2,196	2,669	2,567	2,349
1977													
Crude imports	2,711	2,508	2,198	2,537	1,944	2,079	2,289	2,360	1,810				
Product imports	123	117	169	166	145	183	171	216	147				
Total imports	2,834	2,625	2,367	2,703	2,089	2,262	2,460	2,576	1,957				
Exports	277	266	286	356	366	276	278	351	279				
Net imports	2,557	2,359	2,081	2,347	1,723	1,986	2,182	2,225	1,678				
Italy													
1973													
Crude imports	2,308	2,448	2,600	2,598	2,498	2,996	2,779	2,784	2,606	2,548	1,844	N.A.	2,567
Product imports	76	133	97	98	154	98	109	137	232	29	65	N.A.	102
Total imports	2,384	2,581	2,697	2,696	2,652	3,094	2,888	2,921	2,838	2,577	1,909	N.A.	2,669
Exports	604	628	513	595	678	671	775	725	586	630	515	N.A.	579
Net imports	1,780	1,953	2,184	2,101	1,974	2,423	2,113	2,196	2,252	1,947	1,394	N.A.	2,090
1974													
Crude imports	1,576	2,850	2,270	2,527	2,961	2,435	2,575	2,800	2,254	2,270	2,285	2,237	2,397
Product imports	71	60	92	145	126	108	219	190	241	225	378	283	119
Total imports	1,647	2,910	2,362	2,672	3,087	2,543	2,794	2,990	2,495	2,495	2,663	2,520	2,516
Exports	198	645	413	583	444	397	546	433	407	293	375	363	423
Net imports	1,449	2,265	1,949	2,089	2,643	2,146	2,248	2,557	2,088	2,202	2,288	2,157	2,093
1975													
Crude imports	1,858	1,688	1,724	1,841	1,659	1,949	1,706	1,918	2,236	2,117	1,752	1,990	1,941
Product imports	172	229	246	246	319	181	219	142	138	202	191	229	180
Total imports	2,030	1,917	1,970	2,087	1,978	2,130	1,925	2,060	2,374	2,319	1,943	2,219	2,121
Exports	240	264	212	240	246	308	285	413	394	324	252	236	291
Net imports	1,790	1,653	1,758	1,847	1,732	1,822	1,640	1,647	1,980	1,995	1,691	1,983	1,830

Selected Developed Countries: Trends in Oil Trade

Thousand b/d

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
Italy (Continued)													
1976													
Crude imports	2,024	2,024	2,024	2,014	2,014	2,014	2,115	2,115	2,115	2,131	2,131	2,131	2,071
Product imports	160	160	160	216	216	216	219	219	219	194	194	194	197
Total imports	2,184	2,184	2,184	2,230	2,230	2,230	2,334	2,334	2,334	2,325	2,325	2,325	2,268
Exports	271	271	271	337	337	337	322	322	322	289	289	289	305
Net imports	1,913	1,913	1,913	1,893	1,893	1,893	2,012	2,012	2,012	2,036	2,036	2,036	1,963
1977 [2]													
Crude imports	2,198	2,198	2,198	2,370	1,931	2,145	1,966	2,025	1,971				
Product imports	232	232	232	198	141	196	145	134	161				
Total imports	2,430	2,430	2,430	2,568	2,072	2,341	2,111	2,159	2,132				
Exports	368	368	368	341	365	434	290	358	292				
Net imports	2,062	2,062	2,062	2,227	1,707	1,907	1,821	1,801	1,840				
United Kingdom													
1973													
Crude imports	2,276	2,090	2,273	2,248	2,402	2,535	2,175	2,818	1,917	2,892	2,415	2,004	2,329
Product imports	615	533	457	359	488	439	323	417	361	416	326	208	409
Total imports	2,891	2,623	2,730	2,607	2,890	2,974	2,498	3,235	2,278	3,308	2,741	2,212	2,738
Exports	464	311	323	329	332	257	430	555	496	464	488	293	396
Net imports	2,427	2,312	2,407	2,278	2,558	2,717	2,068	2,680	1,782	2,844	2,253	1,919	2,342
1974													
Crude imports	2,593	2,439	2,486	2,437	2,486	2,442	2,182	1,994	2,144	2,534	2,259	1,941	2,271
Product imports	440	372	353	306	364	291	326	252	246	324	372	385	314
Total imports	3,033	2,811	2,839	2,743	2,850	2,733	2,508	2,246	2,390	2,858	2,631	2,326	2,585
Exports	491	256	204	238	344	373	331	364	353	385	268	314	321
Net imports	2,542	2,555	2,635	2,505	2,506	2,360	2,177	1,882	2,037	2,473	2,363	2,012	2,264
1975													
Crude imports	2,216	2,030	1,491	1,849	1,802	1,926	1,748	1,776	1,687	2,032	1,429	1,599	1,775
Product imports	442	329	267	290	231	257	262	247	240	303	348	344	292
Total imports	2,658	2,359	1,758	2,139	2,033	2,183	2,010	2,023	1,927	2,335	1,777	1,943	2,067
Exports	310	343	224	226	262	303	317	308	357	423	299	261	300
Net imports	2,348	2,016	1,534	1,913	1,771	1,880	1,693	1,715	1,570	1,912	1,478	1,683	1,767
1976													
Crude imports	1,888	1,986	1,762	1,938	1,698	1,814	1,688	1,615	1,779	1,474	2,112	1,724	1,770
Product imports	302	314	421	301	318	267	297	220	221	200	251	283	282
Total imports	2,190	2,300	2,183	2,239	2,016	2,081	1,985	1,835	2,000	1,674	2,363	2,007	2,052
Exports	333	264	384	332	349	328	407	399	488	464	522	447	392
Net imports	1,857	2,036	1,799	1,907	1,667	1,753	1,578	1,436	1,512	1,210	1,841	1,560	1,660
1977													
Crude imports	1,756	1,511	1,672	1,347	1,701	1,449	1,147	1,263	1,358	1,311			
Product imports	253	238	261	272	312	286	261	313	249	257			
Total imports	2,109	1,749	1,933	1,619	2,013	1,735	1,408	1,576	1,607	1,568			
Exports	546	575	589	538	539	732	597	747	752	528			
Net imports	1,563	1,174	1,344	1,081	1,474	1,003	811	829	855	1,040			
West Germany													
1973													
Crude imports	2,177	2,217	2,226	2,201	2,173	2,306	2,091	2,140	2,297	2,359	2,274	2,067	2,210
Product imports	776	788	690	831	870	748	789	710	828	904	859	709	836
Total imports	2,953	3,005	2,916	3,032	3,043	3,054	2,889	2,850	3,125	3,263	3,133	2,776	3,046
Exports	153	177	164	135	184	174	177	185	155	239	235	141	177
Net imports	2,800	2,828	2,752	2,897	2,859	2,880	2,712	2,665	2,970	3,024	2,898	2,635	2,869
1974													
Crude imports	2,050	1,891	1,973	1,962	1,990	2,245	2,080	2,147	2,055	2,048	2,244	1,918	2,050
Product imports	613	774	767	646	795	740	882	891	806	756	669	689	746
Total imports	2,663	2,665	2,649	2,608	2,785	2,985	2,962	3,038	2,861	2,804	2,913	2,607	2,796
Exports	180	178	238	147	236	141	170	214	193	165	184	186	199
Net imports	2,483	2,487	2,411	2,461	2,549	2,844	2,792	2,824	2,668	2,639	2,729	2,421	2,597
1975													
Crude imports	1,684	1,614	1,453	1,798	1,754	1,911	1,676	1,839	1,810	2,051	2,075	1,935	1,807
Product imports	583	766	606	824	575	920	794	767	873	789	667	718	709
Total imports	2,267	2,380	2,059	2,622	2,329	2,831	2,470	2,606	2,683	2,840	2,742	2,653	2,509
Exports	158	120	113	132	100	121	137	120	133	125	161	126	129
Net imports	2,109	2,260	1,946	2,490	2,229	2,710	2,333	2,486	2,550	2,715	2,581	2,527	2,380
1976													
Crude imports	1,669	1,836	1,717	1,823	1,830	1,847	2,050	2,168	2,220	2,068	2,233	2,273	1,979
Product imports	761	978	792	808	833	871	850	991	811	645	690	899	830
Total imports	2,430	2,814	2,509	2,631	2,663	2,718	2,900	3,159	3,031	2,713	2,923	3,172	2,809
Exports	113	115	148	115	131	101	176	128	168	116	132	160	134
Net imports	2,317	2,699	2,361	2,516	2,532	2,617	2,724	3,031	2,863	2,597	2,791	3,012	2,675
1977													
Crude imports	2,140	2,020	1,894	1,774	1,871	1,920	2,042	2,097	1,897				
Product imports	705	615	680	813	751	921	969	835	730				
Total imports	2,845	2,635	2,574	2,587	2,622	2,841	3,011	2,932	2,627				
Exports	78	155	128	113	152	147	117	129	129				
Net imports	2,767	2,480	2,446	2,474	2,470	2,694	2,894	2,803	2,498				

[1] Bureau of the Mines data through Jun 1977.
[2] Estimated.

Developed Countries: Exports to OPEC[1]

Million US $ (f.o.b.)

	Algeria	Ecuador	Gabon	Indonesia	Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	UAE	Venezuela	Total
United States														
1974	315.1	325.8	32.5	530.5	1,733.6	284.7	208.5	139.4	286.4	33.6	835.1	229.7	1,767.7	6,722.6
1975	631.8	409.8	58.7	810.1	3,243.7	309.7	366.1	231.5	536.3	50.3	1,501.8	372.2	2,243.3	10,765.3
1976	487.0	415.8	45.9	1,036.0	2,776.0	381.8	471.5	276.6	769.9	78.7	2,774.1	424.8	2,627.8	12,565.9
1st Qtr	75.7	91.3	9.1	271.1	748.3	78.6	111.9	33.1	127.4	16.5	484.9	111.2	591.7	2,750.8
2d Qtr	165.5	99.8	9.0	286.7	617.1	95.4	110.3	52.5	161.6	19.6	743.3	112.0	640.1	3,112.9
3d Qtr	113.0	105.1	8.0	244.5	624.5	159.0	114.6	118.1	197.8	8.5	714.2	81.0	617.4	3,105.7
4th Qtr	132.8	119.6	19.8	233.7	786.1	48.8	134.7	72.9	283.1	34.1	831.7	120.6	778.6	3,596.5
1977														
1st Qtr	116.0	98.0	9.3	187.8	592.7	53.7	152.3	68.5	203.6	24.6	739.5	147.0	669.2	3,062.2
2d Qtr	145.7	133.4	9.5	197.1	609.8	49.5	157.1	89.0	239.6	19.0	838.1	134.3	766.8	3,388.9
Japan														
1974	154.5	113.8	7.4	1,453.3	1,014.9	474.4	279.5	234.4	285.1	46.7	677.5	309.2	399.0	5,449.7
1975	260.9	177.8	14.2	1,849.9	1,855.3	818.8	367.1	240.2	586.0	122.3	1,350.4	420.2	360.2	8,423.3
1976	204.4	133.6	16.7	1,642.4	1,709.4	626.2	720.4	327.2	575.0	229.0	1,892.7	636.8	563.6	9,277.4
1st Qtr	44.3	21.6	1.8	361.6	400.0	128.0	126.2	68.1	112.6	56.5	330.8	130.8	89.4	1,871.7
2d Qtr	56.6	32.8	2.7	381.1	400.0	191.4	172.9	75.0	124.8	42.2	529.6	143.4	118.6	2,271.1
3d Qtr	33.5	34.8	7.3	435.8	437.4	156.4	199.1	93.7	133.2	60.6	569.8	165.1	149.1	2,475.8
4th Qtr	70.0	44.4	4.9	463.9	472.0	150.4	222.2	90.4	204.4	69.7	462.5	197.5	206.5	2,658.8
1977														
1st Qtr	52.0	38.2	5.9	390.6	427.2	131.3	237.5	67.9	211.1	73.2	425.8	224.5	173.8	2,459.0
Apr	48.4	20.8	1.3	124.4	141.8	92.9	84.6	16.6	69.1	34.8	174.1	77.8	79.9	966.5
West Germany														
1974	482.9	82.3	28.3	324.3	1,139.1	373.4	159.9	402.4	346.0	20.9	286.0	90.2	330.6	4,066.3
1975	610.1	76.5	23.9	392.7	2,105.1	1,047.7	203.2	535.9	653.4	47.0	564.6	145.1	371.2	6,776.4
1976	740.2	93.2	27.1	478.4	2,294.3	884.4	304.8	523.3	867.2	67.7	1,191.1	233.3	540.5	8,245.5
1st Qtr	178.1	17.5	5.2	97.6	484.5	216.6	56.0	121.4	185.5	15.0	182.8	45.9	104.2	1,710.3
2d Qtr	152.5	17.9	6.8	104.2	539.7	182.9	63.7	102.0	176.6	22.3	302.3	50.0	117.3	1,838.2
3d Qtr	198.0	34.1	7.5	123.7	590.1	269.2	83.0	153.6	214.2	11.3	324.1	58.3	167.7	2,234.8
4th Qtr	211.6	23.7	7.6	152.9	680.0	215.7	102.1	146.3	290.9	19.1	381.9	79.1	151.3	2,462.2
1977														
1st Qtr	312.8	35.2	8.4	98.4	608.4	205.1	79.6	136.6	260.4	24.5	298.1	81.3	158.4	2,307.2
Apr	69.8	7.4	2.7	28.9	221.1	81.7	28.2	49.0	104.6	6.0	107.4	34.9	57.6	799.3
France														
1974	1,297.5	18.4	185.0	103.9	257.5	214.4	63.9	362.7	175.0	9.4	120.0	68.6	140.9	3,017.2
1975	1,904.2	18.2	335.8	120.6	631.6	409.0	97.5	405.5	462.9	15.0	198.6	134.1	175.8	4,908.8
1976	1,475.2	17.7	389.8	219.3	652.7	473.5	225.9	348.7	531.8	31.7	339.3	190.8	170.4	5,066.8
1st Qtr	392.7	4.3	84.4	63.2	176.3	134.8	34.7	94.2	102.7	7.3	65.3	44.1	36.3	1,240.3
2d Qtr	330.2	4.8	90.6	56.3	162.8	110.4	53.8	99.2	133.7	7.2	92.0	41.1	39.0	1,221.1
3d Qtr	383.1	5.2	114.2	49.5	173.8	111.3	48.1	73.0	136.6	6.6	78.7	50.2	49.4	1,279.7
4th Qtr	369.2	3.4	100.6	50.3	139.8	117.0	89.3	82.3	158.8	10.6	103.3	55.4	45.7	1,325.7
1977														
1st Qtr	363.7	5.5	121.0	56.2	154.3	127.7	36.4	98.6	184.8	20.7	114.3	52.2	56.2	1,391.6
Apr	104.3	1.5	45.6	19.7	57.0	32.2	18.0	33.3	55.0	4.1	59.4	13.6	16.0	459.7
United Kingdom														
1974	128.1	31.8	8.4	109.2	653.2	139.9	139.9	146.5	520.3	51.6	280.4	227.0	117.8	2,554.1
1975	173.7	38.4	6.3	133.4	1,097.7	302.2	217.5	236.8	1,125.9	121.6	440.0	440.8	200.3	4,534.6
1976	183.7	41.2	7.3	144.4	921.1	273.5	257.1	241.8	1,389.0	155.9	710.6	579.0	229.9	5,134.5
1st Qtr	50.0	7.0	2.1	33.4	235.3	95.5	52.0	57.1	339.8	38.3	131.7	141.1	55.1	1,238.4
2d Qtr	47.0	9.1	1.9	38.7	250.9	60.8	59.8	61.0	338.4	44.3	161.0	137.4	48.9	1,259.2
3d Qtr	43.9	11.4	1.5	32.2	226.2	63.4	69.8	64.7	340.5	34.0	193.8	130.3	50.8	1,262.5
4th Qtr	42.8	13.7	1.8	40.1	208.7	53.8	75.5	59.0	370.3	39.3	224.1	170.2	75.1	1,374.4
1977														
1st Qtr	43.8	22.3	2.0	42.7	274.3	66.4	79.1	61.9	407.2	42.6	209.7	209.1	59.8	1,520.9
2d Qtr	34.3	26.1	3.4	30.2	282.6	70.0	113.6	77.5	482.9	57.0	250.9	194.7	64.2	1,687.4

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Developed Countries: Exports to OPEC[1]
(Continued)

Million US $ (f.o.b.)

	Algeria	Ecuador	Gabon	Indonesia	Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	UAE	Venezuela	Total
Italy														
1974	**325.7**	**25.5**	**6.6**	**58.0**	**282.4**	**96.0**	**65.7**	**853.8**	**131.0**	**11.0**	**133.2**	**37.3**	**211.6**	**2,237.8**
1975	**559.7**	**30.2**	**13.9**	**85.5**	**566.3**	**259.5**	**116.5**	**1,032.2**	**298.5**	**22.6**	**323.3**	**87.6**	**321.9**	**3,717.7**
1976	**408.5**	**22.6**	**14.9**	**53.1**	**730.6**	**203.2**	**175.2**	**955.5**	**317.4**	**25.7**	**636.1**	**133.2**	**350.4**	**4,026.4**
1st Qtr	104.5	4.3	2.4	12.3	140.4	42.7	26.3	186.0	46.2	6.7	96.3	23.8	63.9	755.8
2d Qtr	77.9	4.8	3.2	18.4	193.5	67.6	39.1	232.8	74.2	5.2	127.5	28.8	77.7	950.7
3d Qtr	97.1	6.2	4.0	11.8	198.6	48.4	46.9	265.6	92.4	7.5	155.0	31.0	92.1	1,056.6
4th Qtr	129.0	7.3	5.3	10.6	198.1	44.5	62.9	271.1	104.6	6.3	257.3	49.6	116.7	1,263.3
1977														
1st Qtr	126.8	5.9	7.3	11.5	193.6	53.6	53.9	269.7	122.4	9.0	211.4	45.6	124.8	1,235.5
Apr & May	99.4	6.9	6.7	6.8	153.6	33.0	43.8	229.4	102.3	7.5	160.9	33.5	97.1	980.9
Canada														
1974	**161.2**	**13.4**	**0**	**54.9**	**61.1**	**19.6**	**4.9**	**5.9**	**25.8**	3.6	18.0	**3.9**	**253.3**	**625.6**
1975	**99.3**	**21.4**	**0.5**	**63.7**	**144.7**	**66.5**	**15.7**	**22.4**	**37.6**	1.5	34.3	**4.5**	**314.5**	**826.6**
1976	**94.6**	**24.5**	**2.5**	**77.1**	**145.9**	**36.2**	**22.6**	**9.6**	**32.6**	4.3	**107.8**	**11.4**	**360.4**	**929.5**
1st Qtr	7.1	1.9	0.1	7.9	32.4	21.7	3.9	3.3	9.0	1.2	30.6	2.5	45.6	167.2
2d Qtr	20.6	13.5	1.3	15.4	35.2	8.2	2.6	3.7	6.6	0.2	12.8	3.1	60.6	183.8
3d Qtr	32.4	4.5	0.4	20.9	42.7	5.1	4.7	1.4	6.8	1.4	13.7	2.5	133.5	270.0
4th Qtr	34.5	4.6	0.7	32.9	35.6	1.2	11.4	1.2	10.2	1.5	50.7	3.3	120.7	308.5
1977														
1st Qtr	29.6	3.3	0.6	24.7	35.1	22.1	13.2	2.0	9.8	1.1	28.6	3.4	73.6	247.1
2d Qtr	31.0	5.3	0.3	10.4	31.2	11.8	8.3	5.5	6.5	0.6	22.7	5.1	139.4	278.1

[1] Data are unadjusted.

Developed Countries: Imports From OPEC[1]

Million US $ (c.i.f.)

	Algeria	Ecuador	Gabon	Indonesia	Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	UAE	Venezuela	Total
United States[2]														
1974	**1,090.5**	**473.0**	**162.3**	**1,688.1**	**2,132.2**	**0.9**	**13.4**	**1.4**	**3,286.2**	**79.6**	**1,671.2**	**366.3**	**4,671.1**	**15,636.2**
1975	**1,358.6**	**460.8**	**196.9**	**2,220.6**	**1,399.8**	**19.1**	**111.4**	**1,045.7**	**3,281.5**	**56.5**	**2,624.6**	**683.8**	**3,623.9**	**17,083.2**
1976	**2,209.4**	**539.0**	**189.8**	**3,004.3**	**1,480.1**	**110.0**	**37.6**	**2,243.4**	**4,937.6**	**119.0**	**5,212.9**	**1,359.2**	**3,574.6**	**25,016.9**
1st Qtr	447.5	109.4	51.3	714.4	378.0	1.2	25.7	485.0	1,016.8	22.2	1,152.9	272.7	893.3	5,570.4
2d Qtr	529.9	123.5	65.0	692.5	345.3	0.3	4.3	478.7	1,141.5	8.2	1,166.2	288.2	738.1	5,581.7
3d Qtr	674.8	136.2	20.3	851.1	397.1	35.1	4.9	603.9	1,365.3	57.4	1,506.3	363.9	935.5	6,951.8
4th Qtr	557.2	169.9	53.2	746.3	359.7	73.4	2.7	675.8	1,414.0	31.2	1,387.5	434.4	1,007.7	6,913.0
1977														
1st Qtr	695.7	155.4	58.2	914.0	657.5	45.1	66.2	820.5	1,646.7	41.1	1,603.2	405.8	1,214.6	8,324.0
2d Qtr	743.2	171.1	62.3	926.7	699.3	126.3	72.5	1,080.5	1,598.1	74.3	1,720.8	439.0	958.5	8,672.6
Japan														
1974	**34.3**	**22.3**	**6.8**	**4,569.3**	**4,767.0**	**201.6**	**2,131.9**	**364.2**	**448.9**	**22.1**	**5,238.2**	**2,116.6**	**46.4**	**19,969.6**
1975	**36.4**	**13.5**	**12.8**	**3,431.2**	**4,978.3**	**395.6**	**2,009.7**	**280.1**	**278.6**	**27.6**	**6,132.9**	**1,773.4**	**33.9**	**19,404.0**
1976	**10.3**	**22.0**	**17.9**	**4,093.3**	**4,453.8**	**579.1**	**2,015.9**	**206.7**	**108.7**	**30.4**	**7,834.0**	**2,471.6**	**33.6**	**21,877.3**
1st Qtr	8.7	6.0	5.9	962.5	974.2	119.3	535.1	16.0	73.7	9.4	1,856.7	635.5	9.8	5,212.8
2d Qtr	0.1	6.6	4.3	1,002.0	1,179.1	136.2	466.4	62.3	11.5	4.8	1,954.7	564.2	7.6	5,399.8
3d Qtr	0.7	4.1	4.8	1,021.7	952.6	119.1	505.1	69.0	18.2	11.3	2,064.4	629.5	5.9	5,406.4
4th Qtr	0.8	5.3	2.9	1,107.1	1,347.9	204.5	509.3	59.4	5.3	4.9	1,958.2	642.4	10.3	5,858.3
1977														
1st Qtr	1.7	5.0	2.5	1,252.5	1,181.0	187.4	514.8	14.3	3.8	45.1	2,328.1	699.0	10.6	6,245.8
Apr	0	1.6	0.4	390.9	249.6	62.4	181.1	2.7	4.2	23.5	678.9	177.4	3.8	1,776.5
West Germany														
1974	**1,090.8**	**66.1**	**97.7**	**188.7**	**1,240.3**	**305.3**	**355.0**	**1,633.1**	**1,101.4**	**92.9**	**2,044.1**	**752.1**	**243.9**	**9,211.4**
1975	**1,025.4**	**62.0**	**107.4**	**153.4**	**1,467.4**	**127.9**	**226.9**	**1,391.1**	**962.4**	**124.0**	**1,623.1**	**736.0**	**232.1**	**8,239.1**

Developed Countries: Imports From OPEC[1]
(Continued)

Million US $ (c.i.f.)

	Algeria	Ecua-dor	Gabon	Indo-nesia	Iran	Iraq	Kuwait	Libya	Nigeria	Qatar	Saudi Arabia	UAE	Vene-zuela	Total
West Germany (Continued)														
1976	**1,145.7**	**67.3**	**69.3**	**213.6**	**1,987.5**	**154.7**	**182.1**	**2,103.3**	**975.1**	**124.6**	**1,798.1**	**691.1**	**207.9**	**9,720.3**
1st Qtr	264.0	13.4	21.2	48.2	426.0	27.3	51.3	473.6	251.6	26.3	388.7	153.6	44.3	2,189.5
2d Qtr	292.8	14.4	21.2	35.4	410.3	33.2	55.3	474.9	232.8	41.3	367.3	167.4	76.7	2,223.0
3d Qtr	305.7	12.1	13.0	62.1	526.8	57.0	38.1	544.0	238.7	0.1	554.8	177.9	45.1	2,575.4
4th Qtr	283.2	27.4	13.9	67.9	624.4	37.2	37.4	610.8	252.0	56.9	487.3	192.2	41.8	2,732.4
1977														
1st Qtr	328.6	20.8	16.0	96.8	496.1	38.8	44.6	623.8	232.3	16.6	436.7	197.0	30.0	2,578.1
Apr	66.0	7.3	4.0	24.0	160.2	0.5	20.0	152.5	84.2	22.3	131.7	72.4	10.5	755.6
France														
1974	**957.7**	**9.7**	**320.8**	**61.5**	**716.3**	**1,242.3**	**938.5**	**386.8**	**872.8**	**264.0**	**3,028.3**	**1,184.6**	**133.5**	**10,116.8**
1975	**747.2**	**15.7**	**246.8**	**55.2**	**1,286.1**	**1,128.5**	**652.0**	**200.6**	**859.4**	**211.9**	**3,041.6**	**1,134.4**	**86.1**	**9,665.5**
1976	**691.4**	**13.2**	**293.8**	**97.2**	**1,436.1**	**1,590.6**	**409.1**	**320.3**	**749.4**	**326.1**	**4,079.1**	**1,235.3**	**94.0**	**11,335.6**
1st Qtr	179.8	3.7	64.2	14.4	358.9	281.5	63.1	78.7	207.3	98.4	982.4	452.7	32.6	2,817.7
2d Qtr	170.7	2.8	74.1	21.5	315.8	331.6	120.4	89.4	173.0	74.2	977.1	238.5	20.7	2,609.8
3d Qtr	155.3	1.9	79.1	27.1	331.4	400.0	111.7	65.4	152.6	80.0	1,033.5	264.4	20.3	2,722.7
4th Qtr	185.6	4.8	76.4	34.2	430.0	577.5	113.9	86.8	216.5	73.5	1,086.1	279.7	20.4	3,185.4
1977														
1st Qtr	196.5	5.5	88.1	30.7	448.6	470.7	125.5	65.4	209.4	99.5	1,033.5	263.5	19.5	3,056.4
Apr	54.5	3.5	32.8	13.6	134.1	135.4	23.8	16.3	84.9	16.4	304.5	53.3	6.0	879.1
United Kingdom														
1974	**83.8**	**5.1**	**66.1**	**33.8**	**1,202.9**	**248.6**	**1,334.0**	**913.6**	**860.6**	**388.5**	**2,757.8**	**483.9**	**315.9**	**8,694.6**
1975	**189.8**	**4.6**	**8.1**	**33.2**	**1,554.3**	**226.1**	**935.5**	**288.5**	**685.0**	**348.5**	**1,915.3**	**356.6**	**366.8**	**6,912.3**
1976	**147.3**	**4.6**	**16.3**	**39.9**	**1,879.0**	**492.6**	**1,042.7**	**297.4**	**574.9**	**456.1**	**1,763.9**	**362.6**	**215.4**	**7,292.7**
1st Qtr	54.6	0.9	1.2	7.8	425.9	70.1	223.3	70.1	160.9	149.0	492.1	98.2	70.1	1,824.2
2d Qtr	30.2	1.2	9.6	8.9	478.6	69.5	230.0	42.0	167.9	145.3	386.5	103.0	64.9	1,737.6
3d Qtr	41.4	1.3	3.0	13.4	473.3	196.7	225.7	98.2	138.4	103.3	444.9	103.2	50.8	1,893.6
4th Qtr	21.1	1.2	2.5	9.8	501.2	156.3	363.7	87.1	107.7	58.5	440.4	58.2	29.6	1,837.3
1977														
1st Qtr	26.8	0.9	2.3	9.2	482.0	138.5	224.3	29.8	159.3	99.4	498.6	92.0	19.9	1,783.0
2d Qtr	20.7	2.2	1.1	11.0	359.3	146.0	282.7	81.0	68.9	32.7	558.7	102.1	35.3	1,701.7
Italy														
1974	**268.2**	**25.1**	**56.0**	**72.4**	**1,123.3**	**1,166.4**	**478.6**	**2,364.8**	**360.6**	**208.1**	**3,047.0**	**108.3**	**105.3**	**9,384.1**
1975	**405.3**	**34.0**	**41.7**	**53.4**	**1,134.5**	**1,672.3**	**357.9**	**1,248.4**	**67.6**	**127.1**	**2,351.2**	**201.1**	**159.7**	**7,854.2**
1976	**296.8**	**25.4**	**16.4**	**114.7**	**1,218.9**	**1,304.2**	**203.2**	**1,587.0**	**55.8**	**140.1**	**2,423.8**	**236.8**	**208.1**	**7,831.2**
1st Qtr	81.3	4.8	1.9	21.4	290.5	313.3	17.9	351.8	10.7	33.5	471.3	62.9	27.8	1,689.1
2d Qtr	73.1	6.1	5.0	24.9	309.1	284.5	26.5	481.4	12.7	39.9	729.8	49.6	49.1	2,091.7
3d Qtr	76.5	7.8	5.5	30.1	303.4	356.9	71.9	403.1	17.8	18.9	632.6	41.5	68.9	2,034.9
4th Qtr	65.9	6.7	4.0	38.3	315.9	349.5	86.9	350.7	14.6	47.8	590.1	82.8	62.3	2,015.5
1977														
1st Qtr	40.5	7.7	13.2	33.3	340.9	370.9	168.2	355.1	30.5	26.5	644.8	96.5	37.5	2,165.6
Apr & May	32.7	7.9	5.3	26.7	249.6	297.0	96.2	273.8	17.3	20.0	517.7	41.0	20.2	1,605.4
Canada														
1974	**6.9**	**40.0**	**4.9**	**4.7**	**633.6**	**37.2**	**66.0**	**31.3**	**55.1**	**0**	**325.4**	**88.0**	**1,320.0**	**2,613.1**
1975	**1.7**	**20.8**	**25.4**	**14.0**	**745.3**	**131.7**	**108.7**	**35.5**	**77.0**	**6.3**	**733.3**	**138.2**	**1,088.0**	**3,125.9**
1976	**66.1**	**30.6**	**62.4**	**18.4**	**704.9**	**135.5**	**22.7**	**106.1**	**157.6**	**0**	**488.8**	**62.8**	**1,314.8**	**3,170.7**
1st Qtr	19.1	3.8	11.2	2.2	211.0	30.6	6.4	51.1	85.1	0	118.3	36.0	268.2	843.0
2d Qtr	19.5	7.2	8.1	4.2	211.5	28.4	6.5	35.0	48.8	0	126.6	19.7	439.3	954.8
3d Qtr	4.4	5.0	22.8	6.0	132.5	47.9	9.8	20.0	15.9	0	141.4	7.1	302.4	715.2
4th Qtr	23.1	14.6	20.3	6.0	149.9	28.6	0	0	7.8	0	102.5	0	304.9	657.7
1977														
1st Qtr	9.2	22.1	13.8	3.9	125.7	23.0	0	0	13.3	0	191.9	0	338.8	741.7
2d Qtr	11.0	15.9	0	6.4	136.5	0.1	0	0	0.1	0	167.3	0	339.5	676.8

[1] Data are unadjusted.
[2] Data are f.a.s.
[3] Data are f.o.b.

Selected OECD Countries: Trends in Inland Oil Consumption

Thousand b/d

		1972	1973	1974	1975	1976	1977
United States [1]	**Annual Average**	**16,367**	**17,308**	**16,653**	**16,322**	**17,443**	
	Jan	16,735	18,713	17,286	18,004	18,598	20,481
	Feb	17,861	19,094	17,366	17,084	17,429	20,427
	Mar	16,870	17,216	16,104	16,315	17,299	18,056
	Apr	15,529	15,921	15,929	16,048	16,671	17,570
	May	14,801	16,626	15,726	15,155	15,977	16,960
	Jun	15,615	16,481	16,117	15,610	16,836	18,048
	Jul	14,821	16,372	16,349	15,740	16,613	(est.) 17,553
	Aug	15,936	17,499	16,550	15,806	16,642	(est.) 18,290
	Sep	15,489	16,656	16,024	15,768	16,825	(est.) 17,885
	Oct	16,455	17,202	17,050	16,377	17,052	18,211
	Nov	17,610	18,492	17,351	15,777	18,847	17,462
	Dec	18,738	17,538	18,013	18,185	20,506	
Canada	**Annual Average**	**1,511**	**1,597**	**1,630**	**1,595**	**1,658**	
	Jan	1,536	1,667	1,823	1,691	1,785	1,797
	Feb	1,793	1,747	1,863	1,872	1,754	1,919
	Mar	1,612	1,584	1,659	1,558	1,747	1,664
	Apr	1,367	1,431	1,560	1,592	1,518	1,526
	May	1,374	1,486	1,577	1,471	1,509	1,523
	Jun	1,334	1,474	1,455	1,550	1,560	1,633
	Jul	1,294	1,490	1,534	1,493	1,531	1,530
	Aug	1,394	1,557	1,463	1,449	1,585	1,691
	Sep	1,402	1,427	1,415	1,469	1,514	
	Oct	1,577	1,680	1,680	1,555	1,560	
	Nov	1,685	1,801	1,714	1,577	1,822	
	Dec	1,782	1,828	1,831	1,880	2,008	
Japan	**Annual Average**	**N.A.**	**5,000**	**4,872**	**4,568**	**4,786**	
	Jan	N.A.	5,036	5,103	4,729	4,941	5,428
	Feb	N.A.	5,352	5,664	5,191	5,246	6,019
	Mar	N.A.	5,306	5,407	4,918	5,165	5,540
	Apr	N.A.	4,737	4,706	4,202	4,526	4,713
	May	N.A.	4,597	4,568	4,041	4,218	4,313
	Jun	N.A.	4,776	4,520	4,135	4,429	4,480
	Jul	N.A.	4,586	4,385	4,265	4,416	4,700
	Aug	N.A.	4,684	4,576	4,234	4,461	
	Sep	N.A.	4.778	4,720	4,543	4,517	
	Oct	N.A.	5,093	4,614	4,409	4,523	
	Nov	N.A.	5.559	4,925	4,747	5,160	
	Dec	N.A.	5.526	5,330	5,447	5,846	
Austria	**Annual Average**	**203**	**227**	**203**	**199**	**215**	
	Jan	189	220	236	183	207	200
	Feb	221	225	220	190	208	208
	Mar	212	224	160	172	209	182
	Apr	183	204	169	184	156	197
	May	174	210	172	156	169	166
	Jun	181	200	169	186	189	208
	Jul	179	221	214	210	219	192
	Aug	187	222	218	223	229	213
	Sep	213	227	222	232	246	
	Oct	227	253	243	226	233	
	Nov	246	276	215	201	252	
	Dec	230	234	203	229	261	
Belgium/Luxembourg	**Annual Average**	**485**	**505**	**440**	**416**	**449**	
	Jan	535	543	512	550	498	552
	Feb	591	589	528	558	547	507
	Mar	546	570	392	410	469	517
	Apr	470	565	383	465	460	483

Selected OECD Countries: Trends in Inland Oil Consumption
(Continued)

Thousand b/d

		1972	1973	1974	1975	1976	1977
Belgium/Luxembourg (Continued)	May	454	483	419	363	357	
	Jun	464	463	376	366	383	
	Jul	346	359	339	288	308	
	Aug	367	389	352	331	361	
	Sep	479	465	478	372	425	
	Oct	484	556	534	442	424	
	Nov	563	558	427	439	532	
	Dec	530	503	542	508	628	
Denmark	**Annual Average**				**301**	**307**	
	Jan	N.A.	N.A.	N.A.	332	358	370
	Feb	N.A.	N.A.	N.A.	380	398	405
	Mar	N.A.	N.A.	N.A.	317	367	362
	Apr	N.A.	N.A.	N.A.	354	307	340
	May	N.A.	N.A.	N.A.	258	242	241
	Jun	N.A.	N.A.	N.A.	257	250	236
	Jul	N.A.	N.A.	N.A.	218	184	192
	Aug	N.A.	N.A.	N.A.	264	261	293
	Sep	N.A.	N.A.	N.A.	262	274	
	Oct	N.A.	N.A.	N.A.	302	280	
	Nov	N.A.	N.A.	N.A.	324	356	
	Dec	N.A.	N.A.	N.A.	353	414	
France	**Annual Average**	**1,985**	**2,219**	**2,094**	**1,925**	**2,071**	
	Jan	2,276	2,743	2,523	2,190	2,432	2,518
	Feb	2,450	2,687	2,389	2,243	2,492	2,386
	Mar	2,100	2,528	2,249	1,952	2,372	2,109
	Apr	1,848	2,296	1,970	2,202	2,116	2,044
	May	1,743	1,890	1,915	1,640	1,795	1,846
	Jun	1,597	1,685	2,103	1,642	1,603	1,715
	Jul	1,444	1,566	1,703	1,491	1,624	1,348
	Aug	1,441	1,495	1,506	1,300	1,668	1,390
	Sep	1,950	1,932	1,996	1,785	1,966	1,781
	Oct	2,106	2,482	2,045	1,917	1,908	1,869
	Nov	2,332	2,593	2,260	2,077	2,204	
	Dec	2,574	2,768	2,492	2,658	2,687	
Italy	**Annual Average**	**1,435**	**1,525**	**1,521**	**1,468**	**1,503**	
	Jan	1,720	1,781	1,755	1,792	1,775	1,683
	Feb	1,756	1,866	1,760	1,767	1,743	1,809
	Mar	1,450	1,710	1,579	1,558	1,641	1,548
	Apr	1,169	1,420	1,421	1,530	1,423	1,319
	May	1,138	1,285	1,349	1,174	1,253	1,255
	Jun	1,101	1,255	1,314	1,289	1,236	1,327
	Jul	1,175	1,303	1,368	1,234	1,355	1,233
	Aug	1,129	1,255	1,287	1,105	1,372	1,135
	Sep	1,450	1,462	1,527	1,465	1,604	1,483
	Oct	1,650	1,610	1,569	1,679	1,464	1,405
	Nov	1,702	1,551	1,580	1,448	1,393	
	Dec	1,899	1,698	1,753	1,600	1,779	
Netherlands	**Annual Average**	**496**	**507**	**444**	**412**	**487**	
	Jan	509	584	468	399	480	494
	Feb	591	586	522	430	542	502
	Mar	557	542	438	379	543	494
	Apr	512	541	530	474	443	424
	May	453	475	432	390	453	393
	Jun	430	436	427	403	462	456
	Jul	374	408	415	354	426	388
	Aug	435	437	414	364	446	
	Sep	440	485	440	412	493	

Selected OECD Countries: Trends in Inland Oil Consumption
(Continued)

Thousand b/d

		1972	1973	1974	1975	1976	1977
Netherlands (Continued)	Oct	515	594	472	440	469	
	Nov	581	503	440	419	517	
	Dec	567	505	433	484	576	
Norway	**Annual Average**	**N.A.**	**N.A.**	**143**	**150**	**163**	
	Jan	N.A.	N.A.	155	142	161	177
	Feb	N.A.	N.A.	154	171	180	202
	Mar	N.A.	N.A.	124	137	181	189
	Apr	N.A.	N.A.	126	149	145	162
	May	N.A.	N.A.	118	145	147	150
	Jun	N.A.	N.A.	141	130	153	159
	Jul	N.A.	N.A.	113	120	130	131
	Aug	N.A.	N.A.	125	140	146	156
	Sep	N.A.	N.A.	151	161	168	189
	Oct	N.A.	N.A.	161	162	167	
	Nov	N.A.	N.A.	174	181	175	
	Dec	N.A.	N.A.	180	162	197	
Spain	**Annual Average**	**471**	**581**	**626**	**667**	**744**	
	Jan	483	539	610	720	758	740
	Feb	508	568	639	682	785	727
	Mar	461	564	571	625	769	660
	Apr	447	537	595	688	742	634
	May	444	523	620	622	685	669
	Jun	472	530	608	610	714	672
	Jul	457	466	630	624	755	677
	Aug	462	667	617	584	685	612
	Sep	477	576	636	667	734	694
	Oct	459	669	677	713	742	
	Nov	500	646	653	706	780	
	Dec	515	681	650	735	782	
Sweden	**Annual Average**	**N.A.**	**533**	**490**	**478**	**529**	
	Jan	N.A.	603	521	511	565	606
	Feb	N.A.	555	415	547	530	600
	Mar	N.A.	540	427	479	539	545
	Apr	N.A.	506	441	532	450	499
	May	N.A.	524	495	392	395	466
	Jun	N.A.	420	464	511	410	410
	Jul	N.A.	387	423	362	382	377
	Aug	N.A.	455	463	459	483	450
	Sep	N.A.	492	516	503	571	
	Oct	N.A.	656	553	462	585	
	Nov	N.A.	645	568	446	697	
	Dec	N.A.	618	581	538	740	
United Kingdom	**Annual Average**	**1,954**	**1,974**	**1,857**	**1,633**	**1,601**	
	Jan	2,121	2,315	2,045	1,981	1,679	1,830
	Feb	2,401	2,313	2,127	1,907	1,865	1,844
	Mar	2,249	2,271	2,133	1,731	1,879	1,818
	Apr	2,027	2,038	1,899	1,826	1,716	1,671
	May	1,851	1,939	1,704	1,482	1,417	1,546
	Jun	1,745	1,697	1,545	1,416	1,416	1,454
	Jul	1,519	1,637	1,531	1,322	1,346	1,302
	Aug	1,527	1,615	1,513	1,208	1,276	1,342
	Sep	1,703	1,727	1,663	1,501	1,477	
	Oct	1,959	2,150	2,049	1,707	1,544	
	Nov	2,194	2,258	2,108	1,723	1,750	
	Dec	2,132	1,906	1,983	1,821	1,869	

Selected OECD Countries: Trends in Inland Oil Consumption

(Continued)

Thousand b/d

		1972	1973	1974	1975	1976	1977
West Germany	Annual Average	**2,521**	**2,693**	**2,408**	**2,319**	**2,507**	
	Jan	2,545	2,868	2,556	2,183	2,464	2,389
	Feb	2,803	2,850	1,969	2,455	2,497	2,441
	Mar	2,525	2,707	2,173	2,234	2,747	2,518
	Apr	2,347	2,809	2,539	2,431	2,339	2,425
	May	2,335	2,546	2,403	2,253	2,320	2,359
	Jun	2,632	2,674	2,414	2,106	2,393	2,495
	Jul	2,188	2,196	2,548	2,319	2,624	2,381
	Aug	2,444	2,738	2,476	2,360	2,515	2,468
	Sep	2,487	2,618	2,473	2,309	2,521	
	Oct	2,522	2,969	2,613	2,328	2,391	
	Nov	2,667	2,883	2,432	2,361	2,700	
	Dec	2,783	2,481	2,261	2,502	2,571	

[1] Including bunkers, refinery fuel, and losses.

[2] Principal products only.

Selected OECD Countries: Oil Stocks

Thousand Barrels, End of Month

	United States	Japan	Canada	Austria	Belgium	Denmark	France	Ireland	Italy
1973 Sep	1,057,911 [1]	300,000	113,193	N.A.	N.A.	30,996	194,122	5,555	N.A.
1974 Jan	1,017,333 [1]	275,000	125,289	7,650	35,018	25,017	174,594	5,490	N.A.
Mar	995,365 [1]	257,000	116,060	8,358	25,404	25,849	171,229	6,037	143,876
Jun	1,102,467 [1]	325,000	N.A.	10,454	31,375	28,025	196,406	6,190	163,922
Sep	1,156,105 [1]	359,000	148,305	9,278	37,011	34,507	238,630	6,504	177,310
Dec	1,115,916 [1]	334,000	142,233	9,402	40,274	37,223	235,848	7,424	173,609
1975 Jan	1,099,144	330,000	136,590	9,826	40,406	33,609	230,271	7,687	147,431
Mar	1,076,360	296,000	133,805	9,220	38,902	34,595	215,365	7,439	150,124
Jun	1,071,150	314,000	140,617	10,257	36,704	34,566	203,831	7,665	169,776
Sep	1,147,338	330,000	147,939	8,913	41,420	44,238	223,942	7,599	174,010
Dec	1,132,955	325,000	138,462	7,329	40,194	40,325	195,998	7,081	N.A.
1976 Jan [2]	1,102,282	308,000	128,356	6,877	38,508	39,223	182,887	6,825	N.A.
Mar	1,060,489	290,000	121,490	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Jun	1,108,703	325,000	132,174	6,855	41,676	31,193	167,017	7,315	N.A.
Sep	1,206,690	365,000	138,211	8,110	41,537	40,661	209,692	7,877	N.A.
Dec	1,129,445	359,000	125,934	7,680	43,092	37,478	203,407	7,628	157,687
1977 Jan	1,064,915	364,000	126,025	7,059	43,683	36,383	192,676	7,242	155,811
Feb	1,050,507	315,000	120,857	8,358	42,880	33,544	188,347	7,271	154,322
Mar	1,086,822	327,000	125,757	9,074	42,880	33,361	183,303	7,110	151,110
Apr	1,121,008	332,000	122,770	9,454	43,187	32,551	187,048	7,154	166,973
May	1,171,222	358,000	129,467	9,373	44,085	34,128	174,010	8,497	170,893
Jun	1,195,088	362,000	138,808	8,541	43,618	36,215	184,354	9,388	N.A.
Jul	1,239,100	356,000	138,963	9,044	45,552	38,654	197,480	9,943	164,900
Aug	1,251,800	361,000	144,624	8,753	47,538	41,391	209,123	9,957	173,317
Sep	1,284,900	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Oct	1,809,100	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Nov	1,830,200	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

	Luxembourg	Netherlands	Norway	Portugal	Spain	Sweden	Switzerland	Turkey	United Kingdom	West Germany
1973 Sep	N.A.	N.A.	8,045	7,125	N.A.	43,398	26,514	N.A.	152,261	172,010
1974 Jan	N.A.	N.A.	8,446	5,745	40,449	37,668	25,995	N.A.	131,239	149,190
Mar	N.A.	N.A.	9,176	7,840	47,414	39,128	26,382	9,979	134,816	165,549
Jun	N.A.	N.A.	10,476	7,307	50,217	43,034	26,966	9,446	167,637	170,827
Sep	N.A.	N.A.	10,541	7,264	53,538	47,815	28,309	12,527	175,236	187,968
Dec	N.A.	66,452	7,037	7,037	53,261	44,749	29,638	9,345	160,593	187,938
1975 Jan	1,708	65,269	8,650	6,344	40,449	43,727	29,025	8,234	169,623	171,192
Mar	1,745	61,430	9,672	6,110	50,611	39,785	26,928	8,088	145,248	158,169
Jun	2,102	62,941	9,789	5,928	48,633	34,675	27,652	10,220	147,949	161,520
Sep	2,139	63,758	10,986	6,446	51,677	40,114	29,623	11,213	154,921	184,267
Dec	2,044	60,086	11,614	8,541	50,201	43,180	29,762	N.A.	138,941	186,668
1976 Jan	2,015	53,195	12,410	5,533	48,728	42,742	29,200	N.A.	N.A.	184,829
Mar	1,832	52,932	9,570	7,234	N.A	37,668	27,528	N.A.	N.A.	175,483
Jun	1,971	54,560	11,154	6,658	N.A	37,194	28,587	N.A.	135,291	189,092
Sep	1,986	61,656	12,038	6,066	50,582	37,194	29,799	N.A.	140,686	201,845
Dec	2,008	56,568	12,468	8,176	N.A.	48,326	31,178	9,541	136,065	218,540
1977 Jan	2,008	53,618	12,673	9,855	61,320	45,954	32,047	8,636	133,320	217,474
Mar	1,978	53,078	9,833	7,205	66,576	40,478	31,032	7,169	124,217	211,423
Jun	2,022	58,765	12,695	7,753	67,240	46,070	33,514	10,731	129,020	219,781
Jul	2,044	62,481	12,790	7,358	67,897	46,143	34,274	N.A.	132,422	224,380
Aug	2,022	N.A.	13,921	6,760	64,006	46,143	34,821	N.A.	133,524	230,870

[1] Estimated.

[2] As of January 1977, US Bureau of Mines changed the reporting of crude oil stocks to include foreign crude oil not yet received at refineries. Figures for 1976 and 1977 have been computed on the new basis.

Estimated OECD Oil Consumption[1]

Million b/d

	1st Qtr	2d Qtr	3d Qtr	4th Qtr
1973	43.2	37.6	36.8	42.4
1974	39.6	35.9	36.3	39.0
1975	37.9	34.2	34.2	37.6
1976	39.9	35.7	36.2	41.1
1977	42.5	37.1		

[1] Excluding Australia and New Zealand, and including US refinery gain.

Western Europe: Oil Spot Market Prices

US $ per Barrel

	F.O.B. Rotterdam[1]				F.O.B. Italy[2]			
	Heavy Fuel Oil				Heavy Fuel Oil			
	1% Sulfur	3.5% Sulfur	Gas Oil	Gasoline (Premium)	1% Sulfur	3.5% Sulfur	Gas Oil	Gasoline (Premium)
1974								
1st Qtr	14.02	12.77	15.13	19.76	13.87	12.88	13.95	19.26
2d Qtr	10.15	9.70	11.77	19.61	9.90	9.35	10.93	18.77
3d Qtr	9.87	9.24	12.34	13.92	9.61	9.23	11.96	13.15
4th Qtr	11.09	10.11	12.33	13.26	10.29	9.96	11.68	12.08
1975								
1st Qtr	11.97	10.49	11.18	14.20	10.57	10.24	11.10	13.23
2d Qtr	10.61	9.68	12.90	15.95	10.40	10.16	12.24	15.28
3d Qtr	9.33	8.62	14.40	15.02	8.81	8.30	13.87	14.64
4th Qtr	9.53	8.33	14.84	15.85	8.99	8.38	14.56	15.24
1976								
1st Qtr	10.39	9.84	13.79	17.10	9.95	9.65	13.59	16.48
2d Qtr	10.40	9.56	14.08	19.24	10.18	9.73	13.90	18.30
3d Qtr	11.06	9.99	14.40	18.02	10.34	10.06	14.19	17.37
4th Qtr	12.07	10.76	14.57	17.44	11.64	10.85	14.48	16.83
1977								
1st Qtr	13.25	11.71	15.80	16.82	13.53	12.06	15.89	16.56
2d Qtr	12.51	10.77	15.74	17.26	12.25	10.88	15.71	16.48
3d Qtr	12.47	11.33	15.67	16.60	12.42	11.29	15.70	15.87
Oct	12.57	11.58	15.60	16.51	12.54	11.64	15.62	15.58
Nov	12.73	11.57	15.74	16.50	12.24	11.63	15.59	15.46

[1] Barge lot—minimum 3,500 barrels.
[2] Cargo lot—minimum 130,000 barrels.

Selected Developed Countries: Retail Petroleum Product Prices

US Cents per Gallon

	Regular Gasoline		Premium Gasoline		Diesel Fuel	
	Price [1]	Tax	Price [1]	Tax	Price [1]	Tax
United States						
1973 Oct	40	12	44	12	23	12
1974 Jan	46	12	50	12	32	12
Jun	55	12	59	12	36	12
1975 Jan	53	12	57	12	50	12
Jun	57	12	61	12	51	12
1976 Jan	58	12	63	12	52	12
Jun	59	12	64	12	52	12
1977 Jan	60	12	65	12	54	12
Jun	63	12	69	12	57	12
Aug	63	12	69	12	57	12
Japan						
1973 Oct	88	39	105	39	48	21
1974 Jan	115	39	133	39	54	21
Jun	137	47	155	47	71	21
1975 Jan	152	47	170	47	78	21
Jun	155	47	172	47	82	21
1976 Jan	156	47	174	47	86	21
Jun	157	47	175	47	93	27
1977 Jan	167	59	185	59	93	27
Jun	167	59	185	59	88	25
West Germany						
1973 Oct	112	81	124	82	112	76
1974 Jan	137	83	149	84	139	79
Jun	137	83	149	84	139	79
1975 Jan	129	84	140	84	137	76
Jun	129	84	143	84	137	76
1976 Jan	141	84	151	85	141	79
Jun	144	84	154	85	141	79
1977 Jan	144	84	154	84	141	79
Jun	141	84	150	86	140	79
Oct	140	84	149	86	140	79
France [2]						
1973 Oct	95	65	103	69	66	39
1974 Jan	123	69	133	73	79	41
Jun	123	69	133	73	79	41
1975 Jan	129	73	139	77	88	38
Jun	129	73	139	77	85	46
1976 Jan	134	75	145	80	95	47
Jun	134	76	149	80	95	48
1977 Jan	159	97	171	103	99	48
Jun	167	101	180	108	109	54
Oct	167	101	180	108	109	54
United Kingdom						
1973 Oct	51	32	53	32	51	32
1974 Jan	55	32	57	32	55	32
Jun	76	39	79	39	78	39
1975 Jan	100	39	104	39	79	39
Jun	100	39	104	39	78	39
1976 Jan	107	54	109	53	88	39
Jun	107	54	109	54	88	39
1977 Jan	112	55	115	56	111	52
Jun	119	64	122	64	120	59
Oct	107	55	110	55	120	59
Italy [2]						
1973 Oct	75	56	79	58	41	26
1974 Jan	81	57	85	59	48	27
Jun	105	69	111	70	58	27
1975 Jan	122	83	128	87	58	27
Jun	122	83	128	87	60	28
1976 Jan	128	84	134	87	62	27
Jun	164	107	171	110	70	29
1977 Jan	205	147	213	153	72	29
Jun	205	148	213	153	66	19
Oct	205	148	213	153	66	19
Canada [3]						
1973 Oct	44	17	48	17	48	23
1974 Jan	44	17	48	17	48	23
Jun	51	17	55	17	55	23
1975 Jan	52	17	56	17	56	23
Jun	54	17	58	17	56	23
1976 Jan	66	25	70	25	61	31
Jun	66	25	70	25	62	31
1977 Jan	70	25	74	25	65	31
Mar	72	25	77	25	68	31

NOTE: Converted at 28 March 1977 exchange rates.
[1] Including tax.
[2] Government price ceilings in effect.
[3] Toronto prices.

OPEC Countries: Crude Oil Prices

US $ per Barrel

	4th Qtr 1975		1976		1st Qtr 1977		2d Qtr 1977		3d Qtr 1977	
	Operating Company Cost	Direct Sales Price	Operating Company Cost	Direct Sales Price	Operating Company Cost	Direct Sales Price	Operating Company Cost	Direct Sales Price	Operating Company Cost	Direct Sales Price
OPEC average [3]	11.41	11.75	11.48	11.77	12.45	12.74	12.46	12.76	12.70	13.01
Saudi Arabia										
Light 34° API 1.70% sulfur	11.27	11.51	11.27	11.51	11.84	12.09	11.84	12.09	12.45	12.70
Berri 39° API 1.16% sulfur	11.62	11.87	11.62	11.87	12.22	12.48	12.22	12.48	12.95	13.22
Heavy 27° API 2.85% sulfur	10.90	11.14	10.85	11.08	11.13	11.37	11.13	11.37	11.77	12.02
Medium 31° API 2.40% sulfur	11.09	11.33	11.07	11.30	11.44	11.69	11.44	11.69	12.07	12.32
Iran										
Light 34° API 1.35% sulfur	11.40	11.62	11.40	11.62	12.59	12.81	12.59	12.81	12.59	12.81
Heavy 31° API 1.60% sulfur	11.28	11.50	11.15	11.37	12.27	12.49	12.27	12.49	12.27	12.49
Iraq 35° API 1.95% sulfur	11.21	11.43	11.46	11.46	12.62	12.62	12.60	12.60	12.60	12.60
Nigeria 34° API 0.16% sulfur	12.11	12.51	12.64	12.93	13.91	14.22	14.17	14.52	14.17	14.52
UAE 39° API 0.75% sulfur	11.62	11.92	11.62	11.92	12.08	12.50	12.08	12.50	12.73	13.26
Kuwait 31° API 2.50% sulfur [4]	11.15	11.30	11.11	11.26	12.22	12.37	12.22	12.37	12.22	12.37
Libya 40° API 0.22% sulfur	12.08	12.32	12.21	12.47	13.68	13.92	13.68	13.92	13.92	14.20
Venezuela 26° API 1.52% sulfur	11.19	N.A.	11.13	11.33	12.52	12.72	12.52	12.72	12.52	12.72
Indonesia 35° API 0.09% sulfur	10.65	12.80	11.10	12.80	12.15	13.55	12.15	13.55	12.15	13.55
Algeria 42° API 0.10% sulfur	12.62	12.75	13.01	13.01	14.29	14.29	14.29	14.29	14.45	14.45
Qatar 40° API 1.17% sulfur	11.54	11.85	11.54	11.85	12.88	13.19	12.88	13.19	12.88	13.19
Gabon 29° API 1.26% sulfur	10.29	11.55	10.45	11.55	11.79	12.80	11.79	12.80	11.79	12.80
Ecuador 28° API 0.93% sulfur	10.81	11.46	10.81	11.46	N.A.	13.00	N.A.	13.00	N.A.	13.00

[1] Total average f.o.b. costs paid by present or former concessionaires.

[2] F.o.b. prices set by the government for direct sales and, in most cases, for the producing company buy-back oil.

[3] Weighted by the volume of production.

[4] A 10-cent-per-barrel discount will be offered to buyers provided they meet their minimum contractual lifting volumes for second half 1977. The discount will be credited to the lifting companies' accounts beginning in first quarter 1978.

USSR: Crude Oil Production [1]

	Million b/d
1970	7.06
1971	7.54
1972	8.01
1973	8.58
1974	9.18
1975	9.82
1976	10.37
1977	
1st Qtr	10.72
Apr	10.85
May	10.86
Jun	10.93
Jul	10.95
Aug	10.97
Sep	10.97
Oct	11.09
Nov	11.05

[1] Including natural gas liquids.

USSR: Regional Production of Crude Oil [1]

Million b/d

	1970	1971	1972	1973	1974	1975	1976 [2]
Total	**7.06**	**7.54**	**8.01**	**8.58**	**9.18**	**9.82**	**10.4**
Urals-Volga	4.17	4.23	4.31	4.40	4.44	4.50	4.5
West Siberia	0.63	0.90	1.25	1.75	2.33	2.96	3.6
Central Asia	0.58	0.66	0.71	0.76	0.79	0.81	0.8
Azerbaydzhan SSR	0.40	0.38	0.37	0.36	0.36	0.34	0.3
North Caucasus	0.68	0.72	0.69	0.59	0.53	0.47	0.4
Ukrainian SSR	0.27	0.28	0.28	0.27	0.25	0.23	0.2
Komi ASSR	0.11	0.12	0.13	0.13	0.14	0.14	0.2
Belorussia SSR	0.08	0.11	0.12	0.14	0.16	0.16	0.2
Far East	0.05	0.05	0.05	0.05	0.05	0.04	Negl.
Other	0.09	0.09	0.10	0.13	0.13	0.17	0.1

[1] Including natural gas liquids.
[2] Preliminary.

USSR: Imports of Oil

Thousand b/d

	1970	1971	1972	1973	1974	1975	1976
Total	**90**	**130**	**180**	**290**	**110**	**150**	**128**
Middle East							
Egypt	40	40	20	4	3	5	3
Iraq	0	0	80	220	78	108	116
Other	50	90	80	66	29	37	9

USSR: Exports of Oil

Thousand b/d

	1970	1971	1972	1973	1974	1975	1976
Total	**1,920**	**2,110**	**2,140**	**2,380**	**2,340**	**2,600**	**2,970**
Other Communist countries	**1,010**	**1,110**	**1,200**	**1,350**	**1,440**	**1,550**	**1,680**
Eastern Europe	805	895	975	1,100	1,180	1,260	1,370
Asia	30	25	20	20	30	40	40
Cuba	120	130	140	150	155	160	175
Yugoslavia	55	60	65	80	75	90	95
Free World countries	**910**	**1,000**	**940**	**1,030**	**900**	**1,050**	**1,290**
North America	5	0	10	30	20	15	23
Canada	0	0	0	0	3	5	2
United States	5	0	10	30	17	10	21
Western Europe	760	830	815	880	750	880	1,102
Finland	155	170	170	200	180	175	190
France	50	90	60	105	30	70	117
Italy	205	180	170	175	135	135	240
Netherlands	30	35	50	65	60	60	53
Sweden	95	90	90	65	60	70	55
West Germany	125	120	125	115	125	150	145
Other	100	145	150	155	160	220	302
Near and Middle East	60	60	50	30	30	45	56
Egypt	30	32	30	7	4	5	5
Greece	20	20	18	16	20	38	40
Other	10	8	2	7	6	2	11
Africa	25	30	35	35	23	20	23
Ghana	10	12	13	12	6	3	5
Morrocco	14	17	19	19	13	13	13
Other	1	1	3	4	4	4	5
Asia	60	80	30	55	52	60	65
India	5	10	8	10	20	25	22
Japan	54	66	20	41	25	26	35
Other	1	4	2	4	7	9	8
Latin America	0	0	0	0	25	30	21
Brazil	0	0	0	0	25	30	21

USSR: Oil Consumption

	Million b/d
1970	5.15
1971	5.46
1972	5.92
1973	6.33
1974	6.79
1975	7.20
1976	7.55

USSR: Natural Gas Production
Million cm/d

1970	542.3
1971	581.9
1972	604.9
1973	647.5
1974	713.8
1975	792.6
1976	876.0
1977	
1st Qtr	962.5
Apr	933.3
May	912.9
Jun	903.3
Jul	900.0
Aug	909.7
Sep	930.0
Oct	977.4
Nov	971.0

USSR: Regional Production of Natural Gas

Million cm/d

	1970	1971	1972	1973	1974	1975 [1]	1976 [2]
Total	**542.3**	**581.9**	**604.9**	**647.5**	**713.8**	**792.6**	**876.0**
Central Asia	131.7	148.1	162.8	196.0	226.0	260.0 [1]	285.6
Ukrainian SSR	166.8	177.0	184.1	186.6	187.2	188.2 [1]	187.7
North Caucasus	104.8	99.1	82.1	70.8	68.0	65.1	60.0 [3]
West Siberia	26.5	26.5	31.1	45.0	67.7	103.0	131.1
Komi ASSR	17.0	27.5	36.4	38.2	46.7	50.7 [1]	53.6
Azerbaydzhan SSR	15.0	15.9	18.7	22.9	24.9	27.1 [1]	30.1
Urals-Voga and other producing regions in the RSFSR	80.5	87.8	89.7	88.0	93.3	98.5 [1]	127.9

[1] Revised.
[2] Preliminary.
[3] Estimate based on average rate of decline during 1970-75.

USSR: Natural Gas Trade

Million cm/d

	1970	1971	1972	1973	1974	1975	1976
Exports	**9.0**	**12.5**	**13.9**	**18.7**	**38.5**	**53.0**	**70.4**
Eastern Europe	6.4	8.6	9.4	13.3	23.4	31.0	36.7
Bulgaria	0	0	0	0	0.8	3.2	6.1
Czechoslovakia	3.7	4.5	5.3	6.5	8.9	10.1	11.7
East Germany	0	0	0	2.1	7.9	9.1	9.2
Hungary	0	0	0	0	0	1.7	2.7
Poland	2.7	4.1	4.1	4.7	5.8	6.9	7.0
Western Europe	2.6	3.9	4.5	5.4	15.1	22.0	33.7
Austria	2.6	3.9	4.5	4.4	5.8	5.1	7.6
Finland	0	0	0	0	1.2	2.0	2.4
France	0	0	0	0	0	0	2.7
Italy	0	0	0	0	2.2	6.4	10.1
West Germay	0	0	0	1.0	5.9	8.5	10.9
Imports	**9.7**	**22.3**	**30.2**	**31.3**	**32.7**	**34.0**	**32.2**
Afghanistan	7.1	6.9	7.8	7.5	7.8	7.8	6.8
Iran	2.6	15.4	22.4	23.8	24.9	26.2	25.4

USSR: Consumption of Natural Gas

	Million cm/d
1970	543.0
1971	591.7
1972	621.2
1973	660.1
1974	708.0
1975	773.6
1976	837.8

Eastern Europe: Oil Production and Consumption

Thousand b/d

	1970	1971	1972	1973	1974	1975	1976
Production	**384**	**393**	**404**	**410**	**417**	**423**	**429**
Bulgaria	7	6	5	4	3	2	2
Czechoslovakia	4	4	4	3	3	3	2
East Germany	1	1	1	1	1	1	1
Hungary	39	39	40	40	40	40	43
Poland	8	8	7	8	11	11	9
Romania	268	276	283	286	290	292	294
Yugoslavia	57	59	64	68	69	74	78
Consumption [1]	**1,225**	**1,374**	**1,509**	**1,782**	**1,777**	**1,884**	**2,016**
Bulgaria	184	212	222	248	268	248	259 [2]
Czechoslovakia	208	236	256	300	314	327	353 [2]
East Germany	182	202	259	272	269	282	305 [2]
Hungary	127	144	162	179	188	218	230
Poland	172	192	215	268	262	311	322
Romania	198	217	229	261	241	259	293 [2]
Yugoslavia	155	169	164	254	235	239	255

[1] Crude oil equivalent. Because of rounding, components may not add to totals shown.
[2] Estimated.

Eastern Europe: Oil Trade

Thousand b/d

	1970	1971	1972	1973	1974	1975	1976[1]
Crude Oil[2]							
Imports	**879**	**1,013**	**1,171**	**1,401**	**1,421**	**1,551**	**1,733**
USSR	679	800	921	1,044	1,108	1,242	1,355
OPEC	102	117	107	233	295	260	365
Iraq	40	53	28	53	93	125	112
Iran	62	64	71	94	63	72	14
Algeria	0	0	6	0	5	14	0
Libya	0	Negl.	2	0	4	9	13
Kuwait	0	0	0	4	0	15	0
Other	0	0	0	82[3]	130[3]	25[3]	225[3]
Non-OPEC	98	96	143	124	18	49	13
Belgium	0	0	0	0	6	4	0
West Germany	0	0	0	6	4	0	0
Netherlands	0	0	0	0	2	11	0
Syria	Negl.	0	7	3	Negl.	0	0
France	0	7	1	0	0	0	0
Other	98	89	135	115	6	25	13
Petroleum products							
Imports	**166**	**153**	**159**	**177**	**180**	**160**	**164**
Bulgaria	58	51	47	47	48	34	37
Czechoslovakia	22	20	21	25	27	21	25
East Germany	2	4	11	2	2	3	3
Hungary	19	16	14	20	21	19	21
Poland	48	45	47	61	60	63	64
Yugoslavia	17	17	19	22	22	20	14
Exports	**201**	**182**	**220**	**204**	**236**	**243**	**298**
Czechoslovakia	15	18	20	13	10	15	17
East Germany	26	20	47	48	58	57	55
Hungary	18	10	13	13	10	11	11
Poland	26	21	34	27	24	32	54
Romania	107	107	102	99	129	124	157
Yugoslavia	9	6	4	4	5	4	4

[1] Estimated.
[2] Crude oil exports are negligible.
[3] Including data that cannot be distributed by country of origin.

Eastern Europe: Natural Gas Production and Consumption

Million cm/d

	1970	1971	1972	1973	1974	1975	1976
Production	**100.09**	**110.27**	**121.00**	**132.76**	**137.03**	**144.04**	**155.89**
Bulgaria	1.30	0.90	0.60	0.61	0.49	0.30	0.10
Czechoslovakia	3.30	3.35	3.19	2.85	2.67	2.55	2.69
East Germany	3.38	7.82	13.85	19.21	21.18	19.92[1]	19.00[1]
Hungary	9.50	10.15	11.26	13.21	13.96	14.20	16.66
Poland	14.20	14.75	15.95	16.51	15.72	16.34	18.35
Romania	65.73	70.15	72.75	76.73	79.05	86.49	94.36[1]
Yugoslavia	2.68	3.15	3.40	3.64	3.96	4.24	4.73
Consumption	**106.71**	**118.80**	**130.09**	**145.88**	**160.26**	**175.04**[1]	**193.52**[1]
Bulgaria	1.30	0.90	0.60	0.61	1.33	3.55	6.21
Czechoslovakia	6.78	7.56	8.23	9.11	11.49	12.92	15.42
East Germany	3.82	8.12	13.85	21.37	28.96	28.76[1]	28.21[1]
Hungary	10.05	10.72	11.81	13.76	14.51	16.41	19.97[1]
Poland	16.95	18.83	20.06	21.19	21.52	23.22	25.27
Romania	65.18	69.60	72.20	76.20	78.49	85.94[1]	85.39[1]
Yugoslavia	2.63	3.07	3.34	3.64	3.96	4.24	4.73

[1] Estimated.

Eastern Europe: Natural Gas Trade

Million cm/d

	1970	1971	1972	1973	1974	1975	1976
Imports	**7.46**	**9.50**	**10.02**	**13.92**	**23.89**	**31.65** [1]	**38.28** [1]
Bulgaria	0	0	0	0	0.84	3.25	6.11
Czechoslovakia	3.72	4.55	5.36	6.53	8.92	10.47	12.73
East Germany	0.44	0.30	Negl.	2.16	7.78	8.84	9.21
Hungary	0.55	0.57	0.55	0.55	0.55	2.21	3.31
Poland	2.75	4.08	4.11	4.68	5.80	6.88	6.92
Exports	**0.84**	**0.97**	**0.93**	**0.80**	**0.66**	**0.65** [1]	**0.65** [1]
Czechoslovakia	0.24	0.34	0.32	0.27	0.10	0.10	0.10 [1]
Romania	0.55	0.55	0.55	0.53	0.56	0.55 [1]	0.55 [1]
Yugoslavia	0.05	0.08	0.06	Negl.	0	0	0

[1] Estimated.

PRC: Oil Production, Consumption, and Exports

Thousand b/d

	1973	1974	1975	1976
Crude Oil Production	1,090	1,310	1,490	1,670
Crude Oil Consumption	920	1,030	1,300	1,500
Oil Exports [1]	40	110	210	190
Japan	19.4	78.1	157.6	121.2
Philippines	0	2.1	8.3	11.3
Thailand	0.4	0.8	1.1	5.9
Hong Kong	0.8	6.6	13.1	12.3
Other countries [2]	20	20	30	40

[1] Exports include both crude oil and petroleum products. Data are rounded to the nearest five thousand barrels.

[2] Rough estimate of sales to North Korea, Romania, and Vietnam. Sales to North Korea jumped sharply beginning in 1975 when a pipeline between PRC and North Korea was completed.

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FOLLOWING SANITIZED OVERVIEW FROM OER'S INTERNATIONAL ENERGY BIWEEKLY REVIEW ENDING 29 DECEMBER 1977-IS APPROVED FOR PASSING [redacted] AT SECRET LEVEL.

1. AN EFFORT FIS ALREADY UNDER WAY IN OPEC FOR A PRICE INCREASE EARLY IN 1978. SPEARHEADING THE MOVE IS VENEZUELAN PRESIDENT PEREZ, WHO IS CONCERNED ABOUT HIS PARTY'S CHANCES IN NEXT FALL'S ELECTIONS AND WANTS TO COMPENSATE FOR FAILING TO FULLY CAPITALIZE ON HOSTING THE CARACAS MEETING. HE IS CALLING FOR A SPECIAL MEETING TO RAISE PRICES BEFORE THE CARTEL'S NEXT SCHEDULED MINISTERIAL SESSION IN JUNE 1978. BESIDES SEEKING AN IMMEDIATE INCREASE, PEREZ IS ADVOCATING ADOPTION OF A FORMULA THAT WILL AUTOMATICALLY RAISE CRUDE OIL PRICES IN THE FUTURE.

2. EXTRAORDINARY MINISTERIAL MEETINGS ARE NOT UNUSUAL IN OPEC. SEVERAL HAVE BEEN HELD SINCE 1973; THE LAST WAS IN APRIL 1976 IN GENEVA TO DISCUSS OIL PRICES. SUPPORT FOR ONE NOW IS MOST LIKELY TO COME FROM THOSE COUNTRIES THAT ARGUED FOR A PRICE RISE AT CARACAS: IRAQ, LIBYA, ALGERIA, AND NIGERIA. SAUDI ARABIA AND IRAN ARE SATISFIED WITH THE RESULTS AT CARACAS, WHERE THEY SUCCESSFULLY ENGINEERED A PRICE FREEZE WITH MINIMAL FRICTION AMONG CARTEL MEMBERS.

3. RIYADH AND TEHRAN ARE ON PUBLIC RECORD AS ADVOCATING A FREEZE FOR ALL OF 1978. THEY WILL LOOK TO THE MARKET AS AN INDICATOR OF THE INTENSITY OF PRESSURE THEY CAN EXPECT WITHIN OPEC FOR A PRICE RISE.

4. TO CHARACTERIZE THE CURRENT MARKET AS "SOFT" IS MISLEADING; OPEC IS IN A CONSIDERABLY STRONGER POSITION THAN TWO YEARS AGO, FOR EXAMPLE. IN 1975, DEMAND FOR OPEC CRUDE WAS ABOUT 27 MILLION B/D, SEVERAL MILLION B/D BELOW OPEC PRODUCTIVE CAPACITY. NOW DEMAND FOR OPEC OIL IS 31 MILLION B/D. MOREOVER, WE HAVE RECENTLY LOWERED OUR ESTIMATES OF OPEC PRODUCTIVE CAPACITY TO 33 MILLION B/D. THE NEW FIGURE REFLECTS BOTH PRODUCTION CEILING- AND TECHNICAL CONSTRAINTS IN SEVERAL OPEC COUNTRIES. WE WILL PUBLISH A REVISED OPEC OIL PRODUCTION CAPACITY TABLE IN THE 11 JANUARY 1978 ISSUE. (SECRET)
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Assistant Administrator
Foreign Commodity Analysis
Foreign Agriculture Service

Charles Curtis
359 Mr. Richard Dunhman
Chairman
Federal Power Commission
Attn: Mr. George Vivian Mr Wayne McDonald
Room 3106
941 N. Capitol Street, NE

(4 cys) Ms. Sylvia Posner
360-363 Room 5039
Main Interior Bldg.
18th & C Street
Washington, D.C.

1- Assistant Secretary for Energy & Minerals
Department of the Interior

1- Mr. Carl H. Cotterill
Bureau of the Mines
Department of the Interior
Room 727, Columbia Plaza
2401 E Street, N.W.

1- Mr. David A. Page
Special Assistant
Secretary for Energy
Department of Interior

1- Mrs. Barbara Burns
D/Office of International Affairs
Department of the Interior
Room 5312
18th & C Streets, N.W.

364 Mr. Charles Peters, Director
Strategic Warning Staff
Room 1C925, Pentagon

365 Mr. John Gersic
Bicentennial Bldg. Room 661
U.S. International Trade Commission
701 E Street, N.W.

366 Department of Justice
Office of Management & Finance
Security Programs Section
Room 6531
Main Justice Bldg.
For: Richard Levine
Anti-Trust Division

ER IOD 77-026
29 Dec 77

SENDER WILL CHECK CLASSIFICATION TOP AND BOTTOM

	UNCLASSIFIED		CONFIDENTIAL	X	SECRET

OFFICIAL ROUTING SLIP

TO	NAME AND ADDRESS	DATE	INITIALS
1	SA/ER	29 Dec	
2	Room 4G-32		
3			
4	PPG/R&D		
5	Room 7G-07		
6	Hqs.		

	ACTION		DIRECT REPLY		PREPARE REPLY
	APPROVAL		DISPATCH		RECOMMENDATION
	COMMENT		FILE		RETURN
	CONCURRENCE		INFORMATION		SIGNATURE

Remarks:

ER IOD 77-026, 29 Dec'77

Please indicate the items releasable [redacted]

25X1C

none

FOLD HERE TO RETURN TO SENDER

FROM: NAME, ADDRESS AND PHONE NO.	DATE
PPG/R&D Room 7G-07 Hqs. x5203	12-29-77

	UNCLASSIFIED		CONFIDENTIAL	X	SECRET

FORM NO. 237 Use previous editions
1-67 (40)

ER 10D 77-026

29 Dec 77

no items are
releasable
to the foreign

IOD 77-026
29 Dec 77
7 articles

SECRET
NOFORN-NOCONTRACT-ORCON

CONTENTS

25X1A

[redacted]

PUBLICATIONS SOURCE SURVEY

USE OF INFORMATION FROM COLLECTION PROGRAMS IN FINISHED INTELLIGENCE

GENERAL INSTRUCTIONS

Rating forms will be completed for each finished intelligence publication prepared by DDI/Components. This is a machine-supported system and information must be gathered in a formatted fashion. Therefore, each analyst will complete the NON-SHADED parts of section I and II of this form. Please type or print legibly. Questions should be directed to A/Comp/R&E Room 3E63 x 7871 (black) x 1724 (red).

SECTION I

25X1A

[redacted] x1581/7402 I/WE

CARD TYPE (1-2)	SURVEY NO. (3-8)	DATE PUBLISHED (9-12) MO YR	PUBLICATION NUMBER (13-23)	FOR CRG ONLY CIB PUBLICATION DATE (13-18) MO DAY YR
1		12 77	ERIOD-77026	

PUBLICATION TITLE (24-80)

EC COAL INDUSTRY REMAINS IN DOLDRUMS

CARD 2

CARD TYPE (1-2)	SURVEY NO. (3-8)	OFFICE (9-10)			
2		X 02 OER	04 OGCR	07 OSI	27 CRG
		03 OSR	06 OCR	08 OWI	28 ORPA
		30 OIA	40 DIA	60 STATE	59 NSA
		JOINT OFFICE (specify):			(- -)

KEY INTELLIGENCE QUESTION(S)-KIQ: 11 12 13 14 — 1ST KIQ # 2ND KIQ # — 17 18 19 20

DOCUMENT TYPE (15-16)

04 IM	11 IH	15 TM	53 EIW
05 M	12 IB	32 NID	60 SURVEYOR
07 IR	13 RP	41 SID	61 WIS
08 R	14 BR	X 51 IEB R	

CLASSIFICATION: Confidential

CLASSIFICATION CONTROLS:

TOPICAL CATEGORY	GEOGRAPHIC AREA CATEGORY
Internal Politics	USSR
International Relations	Eastern Europe
X Economics	X Western Europe
Military	China
Science & Technology	Other Far East
Geography	Near East/N. Africa
Biography	South Asia
	Africa
	Latin America

LIST SPECIFIC COUNTRIES: The nine member countries of the EC

TO BE COMPLETED BY R & E

CONTROL NO. (21-22)	TOPIC (23-24)	AREA (25-28)

25X1B

PUBLICATIONS SOURCE SURVEY
USE OF INFORMATION FROM COLLECTION PROGRAMS IN FINISHED INTELLIGENCE

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SECTION I

NAME AND TELEPHONE NUMBER OF ANALYST [redacted] 5321 25X1A

CARD 1 XXXXXXXXXXXXXXXXXXXXXXX [redacted] XXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)	DATE PUBLISHED (9-12) MO YR	PUBLICATION NUMBER (13-23)	FOR CRG ONLY CIB PUBLICATION DATE (13-18) MO DAY YR
1		12 77	E R I C 77 - 026	

PUBLICATION TITLE (24-80)

24 CANADA: LARGE ALBERTA OIL 52
53 FIND 80 X

CARD 2 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)	OFFICE (9-10)			
2		✓ 02 OER	04 OGCR	07 OSI	27 CRG
		03 OSR	06 OCR	08 OWI	28 ORPA
		30 OIA	40 DIA	60 STATE	59 NSA
		JOINT OFFICE (specify):			(- -)

KEY INTELLIGENCE QUESTION(S)-KIQ

11	12	13	14
1ST KIQ #		2ND KIQ #	

DOCUMENT TYPE (15-16)

04 IM	11 IH	15 TM	53 EIW
05 M	12 IB	32 NID	60 SURVEYOR
07 IR	13 RP	41 SID	61 WIS
08 R	14 BR	X 51 IOD	

17	18	19	20

CLASSIFICATION:

CLASSIFICATION CONTROLS:

TOPICAL CATEGORY

- [ ] *Internal Politics*
- [ ] *International Relations*
- [X] *Economics*
- [ ] *Military*
- [ ] *Science & Technology*
- [ ] *Geography*
- [ ] *Biography*

GEOGRAPHIC AREA CATEGORY

- [ ] *USSR*
- [ ] *Eastern Europe*
- [X] *Western Europe*
- [ ] *China*
- [ ] *Other Far East*
- [ ] *Near East/N. Africa*
- [ ] *South Asia*
- [ ] *Africa*
- [ ] *Latin America*

LIST SPECIFIC COUNTRIES: Canada

TO BE COMPLETED BY R & E

CONTROL NO. (21-22)	TOPIC (23-24)	AREA (25-26)

Approved For Release 2001/04/27 : CIA-RDP79B00457A001100040001-7

PUBLICATION SOURCE SURVEY

USE OF INFORMATION FROM COLLECTION PROGRAMS IN FINISHED INTELLIGENCE

has not been published yet

GENERAL INSTRUCTIONS

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SECTION I

25X1A

NAME AND TELEPHONE NUMBER OF ANALYST [redacted] 5321

CARD 1 XXXXXXXXXXXXXXXXXXXXXXXX[redacted]XXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)	DATE PUBLISHED (9-12) MO / YR	PUBLICATION NUMBER (13-23)	FOR CRG ONLY CIB PUBLICATION DATE (13-18) MO / DAY / YR
1		01 / 77	ERIOD-77026	

PUBLICATION TITLE (24-80)

PRODUCTION

24 CANADA: MIXED PROSPECT FOR 52

53 NON CONVENTIONAL CRUDE 80 X

CARD 2 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)	OFFICE (9-10)			
2		02 OER	04 OGCR	07 OSI	27 CRG
		03 OSR	06 OCR	08 OWI	28 ORPA
		30 OIA	40 DIA	60 STATE	59 NSA
		JOINT OFFICE (specify):			(- -)

KEY INTELLIGENCE QUESTION(S)-KIQ: 11 12 13 14 — 1ST KIQ # / 2ND KIQ #

DOCUMENT TYPE (15-16)

04 IM	11 IH	15 TM	53 EIW
05 M	12 IB	32 NID	60 SURVEYOR
07 IR	13 RP	41 SID	61 WIS
08 R	14 BR	X 51 IOD	

17 18 19 20 CLASSIFICATION:

CLASSIFICATION CONTROLS:

TOPICAL CATEGORY	GEOGRAPHIC AREA CATEGORY
[ ] Internal Politics	[ ] USSR
[ ] International Relations	[ ] Eastern Europe
[X] Economics	[X] Western Europe
[ ] Military	[ ] China
[ ] Science & Technology	[ ] Other Far East
[ ] Geography	[ ] Near East/N. Africa
[ ] Biography	[ ] South Asia
	[ ] Africa
	[ ] Latin America

LIST SPECIFIC COUNTRIES: CANADA

TO BE COMPLETED BY R & E

CONTROL NO. (21-22)	TOPIC (23-24)	AREA (25-28)

25X1B

PUBLICATION SOURCE SURVEY

USE OF INFORMATION FROM COLLECTION PROGRAMS IN FINISHED INTELLIGENCE

GENERAL INSTRUCTIONS

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SECTION I

25X1A

[redacted] OF ANALYST

CD1

CARD 1 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)	DATE PUBLISHED (9-12) MO YR	PUBLICATION NUMBER (13-23)	FOR CRG ONLY CIS PUBLICATION DATE (13-18) MO DAY YR
1		12 77	ER IO 77-026	

PUBLICATION TITLE (24-80)

USSR - ITALY: RENEGOTIATED GAS PRICES

CARD 2 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)	OFFICE (9-10)			
2		X 02 OER	04 OGCR	07 OSI	27 CRG
		03 OSR	06 OCR	08 OWI	28 ORPA
		30 CIA	40 DIA	60 STATE	59 NSA
		JOINT OFFICE (specify):			(- -)

KEY INTELLIGENCE QUESTION(S)-KIQ

11	12	13	14
1ST KIQ #		2ND KIQ #	

DOCUMENT TYPE (15-16)

04 M	11 IH	15 TM	53 EIW
05 M	12 IB	32 NID	60 SURVEYOR
07 IR	13 RP	41 SID	61 WIS
08 R	14 BR	X 51 IOD	

17	18	19	20

CLASSIFICATION:

CLASSIFICATION CONTROLS:

TOPICAL CATEGORY

- [ ] *Internal Politics*
- [X] *International Relations*
- [X] *Economics*
- [ ] *Military*
- [ ] *Science & Technology*
- [ ] *Geography*
- [ ] *Biography*

GEOGRAPHIC AREA CATEGORY

- [X] *USSR*
- [ ] *Eastern Europe*
- [X] *Western Europe*
- [ ] *China*
- [ ] *Other Far East*
- [ ] *Near East/N. Africa*
- [ ] *South Asia*
- [ ] *Africa*
- [ ] *Latin America*

LIST SPECIFIC COUNTRIES: Italy - USSR

TO BE COMPLETED BY R & E

CONTROL NO. (21-22)	TOPIC (23-24)	AREA (25-28)

25X1B

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25X1A

SECTION I

NAME AND TELEPHONE NUMBER [redacted] x7107

CARD 1 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)	DATE PUBLISHED (9-12) MO YR	PUBLICATION NUMBER (13-23)	FOR CRC ONLY CIB PUBLICATION DATE (13-18) MO DAY YR
1		12 77	ER 10D-77026	

PUBLICATION TITLE (24-80)

USSR SET TO SIGN GAS LIFT CONTRACTS

CARD 2 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2): 2

SURVEY NO. (3-8):

OFFICE (9-10)

X 02 OER	04 OGCR	07 OSI	27 CRG
03 OSR	06 OCR	08 OWI	28 ORPA
30 OIA	40 DIA	60 STATE	59 NSA
JOINT OFFICE (specify):			(- -)

KEY INTELLIGENCE QUESTION(S)-KIQ

11	12	13	14
			7
1ST KIQ #		2ND KIQ #	

DOCUMENT TYPE (15-16)

04 IM	11 IH	15 TM	53 EIW
05 M	12 IB	32 NID	60 SURVEYC*
07 IR	13 RP	41 SID	61 WIS
08 R	14 BR	X 51 IOD	

17	18	19	20

CLASSIFICATION: SECRET

CLASSIFICATION CONTROLS: NOFORN / NO CONTRACT

TOPICAL CATEGORY

- [ ] Internal Politics
- [ ] International Relations
- [x] Economics
- [ ] Military
- [ ] Science & Technology
- [ ] Geography
- [ ] Biography

GEOGRAPHIC AREA CATEGORY

- [x] USSR
- [ ] Eastern Europe
- [ ] Western Europe
- [ ] China
- [ ] Other Far East
- [ ] Near East/N. Africa
- [ ] South Asia
- [ ] Africa
- [ ] Latin America

LIST SPECIFIC COUNTRIES: USSR

TO BE COMPLETED BY R & E

CONTROL NO. (21-22)	TOPIC (23-24)	AREA (25-28)

25X1B

Approved For Release 2001/04/27 : CIA-RDP79B00457A001100040001-7

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25X1A

SECTION I

NAME AND TELEPHONE NUMBER OF ANALYST [redacted] x7107

CARD 1 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)	DATE PUBLISHED (9-12) MO YR	PUBLICATION NUMBER (13-23)	FOR CRG ONLY CIB PUBLICATION DATE (13-18) MO DAY YR
1		12 77	ER10D-77026	

PUBLICATION TITLE (24-80)

USSR: WEST SIBERIAN OIL RESERVES

CARD 2 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

CARD TYPE (1-2)	SURVEY NO. (3-8)
2	

OFFICE (9-10)

X	02 OER		04 OGCR		07 OSI		27 CRG
	03 OSR		06 OCR		08 OWI		28 ORPA
	30 OIA		40 DIA		60 STATE		59 NSA
	JOINT OFFICE (specify):						(- -)

KEY INTELLIGENCE QUESTION(S)-KIQ

11	12	13	14
			7
1ST KIQ #		2ND KIQ #	

DOCUMENT TYPE (15-16)

	04 IM		11 IH		15 TM		53 EIW
	05 M		12 IB		32 NID		60 SURVEYOR
	07 IR		13 RP		41 SID		61 WIS
	08 R		14 BR	X	51 IOD		

17	18	19	20

CLASSIFICATION: SECRET

CLASSIFICATION CONTROLS: NOFORN

TOPICAL CATEGORY

- [ ] Internal Politics
- [ ] International Relations
- [X] Economics
- [ ] Military
- [ ] Science & Technology
- [ ] Geography
- [ ] Biography

GEOGRAPHIC AREA CATEGORY

- [X] USSR
- [ ] Eastern Europe
- [ ] Western Europe
- [ ] China
- [ ] Other Far East
- [ ] Near East/N. Africa
- [ ] South Asia
- [ ] Africa
- [ ] Latin America

LIST SPECIFIC COUNTRIES: USSR

TO BE COMPLETED BY R & E

CONTROL NO. (21-22)	TOPIC (23-24)	AREA (25-28)

25X1B